

Pesticide Output In 1957 Dips 10% Below that of '56

**Preliminary Report by
Tariff Commission Gives
Figure of 512 Million Lb.**

WASHINGTON—The U.S. Tariff Commission on Aug. 1 released preliminary statistics on U.S. production and sales in 1957 of pesticides and other organic agricultural chemicals. This report, the eleventh in a series giving preliminary statistics on production and sales in 1957 of synthetic organic chemicals, provides statistics on the production and sales of pesticides by principal uses—fungicides, herbicides and seed disinfectants, insecticides, rodenticides, and soil conditioners.

According to the report, the total output of pesticides and other organic agricultural chemicals was 512 million pounds in 1957—about 10% less than the 570 million pounds reported for 1956. Sales were over 433 million pounds, valued at \$178 million, in 1957, compared with 399 million pounds, valued at \$173 million, in 1956.

Production of cyclic pesticides and other cyclic chemicals in this group amounted to about 407 million pounds in 1957, compared with 474 million pounds in 1956—a decrease of 14%. Sales were 340 million pounds, valued at \$132 million, in 1957, compared with 343 million pounds, valued at \$135 million, in 1956. The chemical in this group which was produced in the greatest quantity in 1957 was DDT. The output of this product

(Turn to PESTICIDE OUTPUT, page 8)

Ketona Chemical to Expand Facilities

KETONA, ALA.—Ketona Chemical Corp. has announced a new expansion program which will include the construction of facilities here to produce two solid nitrogen products: prilled ammonium nitrate and ammonium nitrate-limestone. The expansion program is the second for the plant, according to P. H. Neal, president.

Awarded the contract to design, engineer and construct the new addition to the Ketona plant, is the Chemical and Industrial Corp., Cincinnati, Ohio. Completion is scheduled for early in 1959, at which time the ammonium nitrate and ammonium nitrate-limestone will be produced by a new C & I process which forms spherical particles said to have unusually good storage and handling properties.

Ketona Chemical is jointly owned by Alabama By-Products Corporation, Birmingham, Ala., and Hercules Powder Co., Wilmington, Del. The initial unit of the concern was projected in 1954, and was the first an-

(Turn to KETONA, page 8)

New Location for NAC's 25th Annual Meeting Announced

WASHINGTON—A new location for its 25th anniversary convention was announced on Aug. 8 by the National Agricultural Chemicals Assn. The new place will be the General Oglethorpe Hotel, Savannah, Ga., according to Lea S. Hitchner, executive secretary of the association. The dates of the meeting, Oct. 29-31, will remain the same, he said.

Details of the change in locale have been sent to members of the NAC Assn. and to guests expected to attend.

Agronomy Meeting Speakers Emphasize Economic Aspects Of Plant Food and Fertility

LAFAYETTE, IND.—Soil fertility, fertilizers, and plant nutrition, as well as a division on weeds and weed control were included in the wide range of subjects discussed at the 50th annual meeting of the American Society of Agronomy held at Purdue University here Aug. 4-8. Participants in the meeting, in addition to the ASA, were the Soil Science Society of America, the Crop Science Society of America and the Agronomic Education Division.

A report on studies of fertilizer placement for small grains was presented at the meeting in a paper prepared by R. L. Cook, J. R. Guttay, L. S. Robertson, C. M. Hansen and H. M. Brown, all of the Michigan Agricultural Experiment Station, East Lansing. They said that fertilizer experiments involving placement for small grains were conducted in Michigan during the past three years, and that considerable delay in emergence of wheat seedlings and a 40% reduction in stand resulted when fertilizer containing 80 lb. or more of complete plant food was applied in contact with seed. This much reduction in stand did not reduce yields below those obtained without fertilizer, however, but still greater amounts of fertilizer did reduce stands to 20%

FDA Raises Rate For Pesticidal Tolerance Fees

WASHINGTON—Fees charged by the Food and Drug Administration for applications for pesticide tolerance levels will be raised Sept. 1 by approximately 2½ times those which have been in effect for the past three years.

FDA officials in commenting to Croplife on this advance in fees say

(Turn to FDA FEES, page 8)

Change from Row-Crop to Extend Fertilizer Sales, Alabama Group Is Told

AUBURN, ALA.—The importance of proper fertilization for efficient crop and livestock production and possibilities for greater fertilizer sales were stressed at the annual Alabama Fertilizer Conference July 29-30. More than 140 fertilizer industry representatives, extension service and agricultural experiment station personnel attended the two-day

meeting at the Black Belt Substation, Marion Junction, Ala., and the Prattville Experiment Field, Prattville, Ala. Sponsors of the event were the Alabama Polytechnic Institute Agricultural Experiment Station and Extension Service in cooperation with the Alabama Soil Fertility Society.

At the opening session, Dr. E. V. Smith, dean and director of the API School of Agriculture and Agricultural Experiment Station, discussed the future of Alabama agriculture and pointed out important changes that are likely to occur. Greater specialization will be the rule for commercial farmers, he said. This may develop to the extent that many dairymen will specialize in managing a dairy herd without doing any other farming, while other farmers produce and supply green and dry forage for the commercial dairy operation, he explained.

Although commercial, family-size farms will decrease sharply, remaining farms will increase in size and capitalization, become more mechanized, and the farm operator will have more managerial ability, Dr. Smith predicted. The experiment station director said that livestock farming will become more intensive, contract farming will increase and more acreage will be devoted to forestry.

Despite changes from a row-crop farming system, the fertilizer industry has opportunities for greater rewards, Dr. Smith emphasized. There are more acres in pasture and feed crops than was ever devoted to cotton in the state, and these crops must be fertilized for high yields, he said.

Presentation of the \$200 National

(Turn to ALABAMA, page 20)

Inside You'll Find

For the Manufacturer:

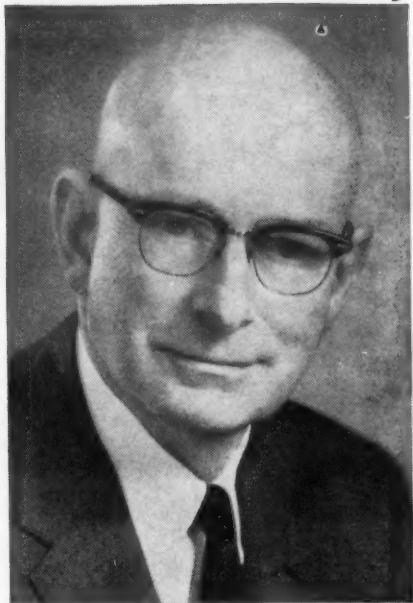
| | |
|--|----|
| Insect Notes | 4 |
| Cattle Grub Control Through Feed | 6 |
| Georgia Fertilizer Conference Report | 7 |
| Patents and Trademarks (Issued July 29) | 8 |
| What's New | 10 |
| Changes in Control Practices | 18 |
| Market Possibilities in Alaska (Editorial) | 22 |
| Meeting Memos | 23 |

For the Dealer:

| | |
|--|----|
| Over the Counter | 9 |
| Postal Guide for Direct Mail Advertising | 9 |
| Weed of the Week (Russian Thistle) | 12 |
| Stock Management in Retail Stores | 13 |
| What's Been Happening | 14 |
| Farm Service Data | 15 |
| Oscar and Pat | 16 |



G. F. Coope



F. O. Davis

TOP-LEVEL CHANGES AT PCA—With the retirement of G. F. Coope as president of Potash Company of America, his position has been filled by F. O. Davis, formerly executive vice president and treasurer of the firm. Mr. Coope, PCA president for the past 21 years, retired as of Aug. 1 (Croplife, July 28, page 8), from his dual role as president of PCA and also of Potash Company of America, Ltd., the wholly-owned subsidiary at Saskatoon, Sask., Canada. Mr. Coope will remain on the firm's board of directors and as a consultant. The new president will head both the American and Canadian interests of the firm. He joined PCA in 1936 as comptroller and has held successively, the posts of treasurer and executive vice president as well as membership on the board of directors and the executive committee.

1958-59 Approved Ratio, Grade List for Oklahoma Announced

OKLAHOMA CITY—The approved ratio and minimum grade list for Oklahoma during the 1958-59 fiscal year has been announced by Park A. Yeats, director of the Seed, Feed and Fertilizer Division of the Oklahoma Department of Agriculture.

The approved ratios and minimum grades are:

0-1-1 (0-14-14, 0-2-1 (0-16-8), 1-1-0 (12-12-0), 1-1-1 (8-8-8), 1-2-0 (8-16-0), 1-2-1 (6-12-6), 1-2-2 (5-10-10), 1-4-2 (4-16-8), 1-4-4 (3-12-12) and 2-1-1 (12-6-6).

The Oklahoma Fertilizer Committee has recommended that the 1-1-0

ratio be dropped after July 1, 1959.

The 1-3-1, 1-3-6 and 2-2-1 ratios, which were on the 1957-58 approved list, have been dropped. The minimum grade for 1-1-0 has been changed from 10-10-0 to 12-12-0, the minimum grade for 1-2-0 has been changed from 7-14-0 to 8-16-0, and the minimum grade for 1-2-1 has been changed from 5-10-5 to 6-12-6 to conform to the 24 unit minimum which has been adopted.

Heads Soil Group

LOGAN, UTAH — Dr. Harold E. Dregne, professor of soils with the New Mexico A&M Experiment Station, was elected president of the Western Society of Soil Science at the annual meeting of the society at Utah State University, Logan, Utah.

A. J. Schuler Dies; Was Prominent in Trade

WELCOME, MINN.—A. J. Schuler, 53, president of the Welcome Agricultural Chemical Co., died unexpectedly of a heart attack on Aug. 2. His company, prominent in the agricultural supply field in Southern Minnesota, has operated under his leadership for a number of years.

Mr. Schuler was active in the affairs of the National Nitrogen Solutions Assn., and served on its board of directors at one time.

According to R. A. Fancher, general manager of the Welcome plant, no arrangements for a successor to Mr. Schuler have yet been made. Mr. Schuler is survived by his parents, five daughters and two sons in addition to his widow.

New Dry Mixing Plant Scheduled for Indiana

FAIRMOUNT, IND.—A new fertilizer mixing plant will be erected here in the near future, according to an announcement by the G. B. C. Chemical Corp. of Indiana. The incorporators of the new corporation were C. R. Heileman, R. Hinds and H. Todd, all of Cincinnati, Ohio. President and general manager of the new corporation will be Earl Campbell, formerly Ohio district representative for Allied Chemical Corp. Mr. Heileman will be secretary-treasurer of the new firm. Capitalization is set at \$50,000.

USDA Registers Mylone For Additional Uses

NEW YORK—Mylone soil fumigant has been registered for expanded uses, according to Union Carbide Chemicals Co., Division of Union Carbide Corp. The U.S. Department of Agriculture has accepted labeling for

Mylone covering applications on any kind of vegetable seed bed, ornamental propagating bed, turf preplanting bed, or forest tree seed bed, Carbide reports.

The product may be used on citrus replants in California only, but it is already used in similar treatments on tobacco plant beds.

Mylone soil fumigant, formulation grade, is supplied to manufacturers who formulate their own branded soil fumigant products.

33 Million Lb. DDT

Purchased by ICA Funds

WASHINGTON, D.C.—During the first six months of 1958, more than 33 million lb. DDT have been bought from U.S. industry with ICA funds and shipped overseas for use in the world-wide malaria eradication program, the State Department reports. The purchase of DDT, along with other necessary supplies and equipment, by the U.S. Government represents a substantial part of the global drive to eradicate this disease.

"The U.S. works with other nations in many ways to wipe out this disease," the Department says. "With 27 countries, the U.S. works directly through government - to - government programs. To these nations the International Cooperation Administration has sent, in addition to DDT, and other supplies, 30 American technicians who work with officials of the host government to set up effective malaria eradication programs." Of these 27 nations, 7 are in the Far East (Cambodia, Indonesia, Laos, Philippines, Taiwan, Thailand, Vietnam); 7 are in the Near East and South Asia (Ceylon, India, Iran, Iraq, Jordan, Nepal, Pakistan); 3 are in Africa (Ethiopia, Liberia, Libya); and 10 in Latin America (Bolivia, Brazil, Colombia, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Paraguay).

Western Range Fertilization Conference To Feature Two Panel Discussions Oct. 27

SAN MARINO, CAL.—More than 300 persons are expected to attend the Western Range Fertilization Conference, to be held at Riverview Country Club, Redding, Cal., on Monday, Oct. 27, 1958. The event will be under the joint sponsorship of the National Plant Food Institute and the soil improvement committee, California Fertilizer Assn. The program will begin with lunch, and will continue through dinner. Attendance will be from the eleven Western States, according to Sidney H. Bierly, CFA general manager.

This conference will precede the annual meeting of the California Chapter, American Society of Range Management, which will be held at the same place on Oct. 28 to 29. The society is cooperating in the range conference program, and its president, Dr. R. Merton Love, professor of agronomy, University of California, Davis, will present the principal address following dinner.

Conference chairman will be William G. Hewitt, president of the California Fertilizer Assn., and a director of the National Plant Food Institute.

The program will include introductory remarks by Mr. Hewitt; a talk, "Range Fertilization in the San Joaquin Valley," by Joseph Urrutia, Friant, Cal.; "Range Fertilization in the Sacramento Valley," by J. W. Sevier, Orland, Cal.; and a panel on range fertilization in the western states.

Participating will be Charles W. Bourg, agronomist, agricultural extension, United States Steel Corp., Salt Lake City, Utah, moderator. Panelists and their subjects will include: "Range Fertilization in Oregon," Thos. Jackson, extension soils specialist, Oregon State College, Salem, Ore.; "Mountain Meadow Fertilization," Forrest Willhite, Colorado

State College, Grand Junction, Colo.; "Range Fertilization in Wyoming," Dr. Dixie Smith, Department of Agronomy and Range Management, University of Wyoming, Laramie, Wyo.; and "Range Fertilization in the Southwest," by Dr. Robert Humphrey, prof. of Range Management, University of Arizona, Tucson, Ariz.

A panel on California range fertilization will follow with Millard E. McCollam, western states manager, American Potash Institute, Inc., and chairman, CFA Soil Improvement Committee, San Jose, Cal., as moderator.

Panelists and their subjects will be: "Statewide Range Fertilization Results," Dr. William E. Martin, extension soils specialist, University of California, Davis; "Teaching Range Fertilization by Demonstration," Dr. Logan Carter, head, Department of Soils, California State Polytechnic College, San Luis Obispo; "Results in Fresno County," Richard Jones, agricultural extension service, University of California, Fresno; "Legume Fertilization," Dr. William Williams, Department of Agronomy, University of California, Davis; "Soil Survey—Nutrient Deficiency Status in California," R. A. Evans, Agricultural Research Service, USDA, University of Nevada, Reno; and "Range Fertilization Economics," R. L. Luckhardt, supervisor, agricultural technical service, Collier Carbon and Chemical Corp., Brea, Cal.

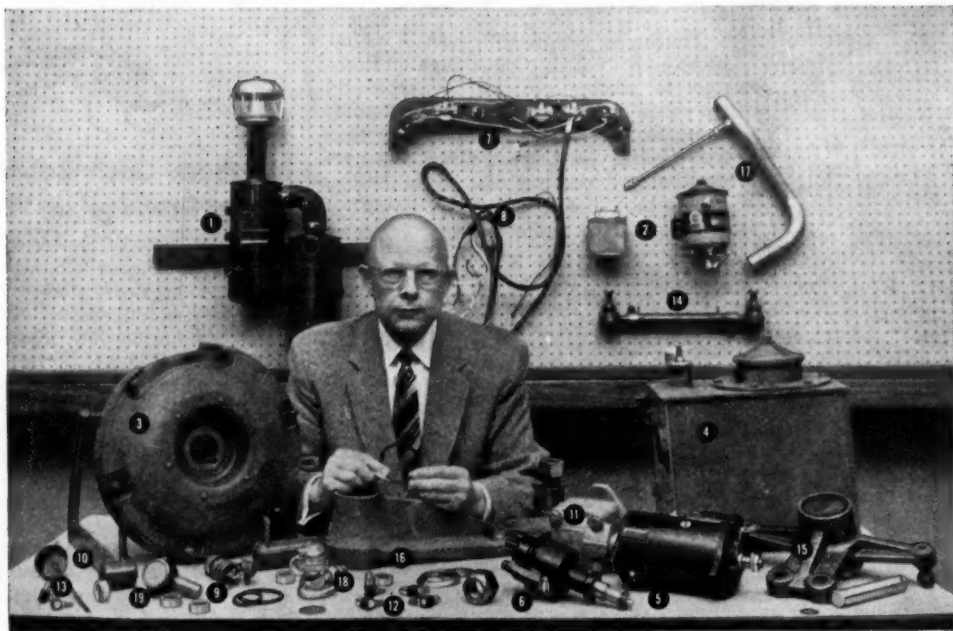
Lester Berry, extension range management specialist, University of California, Davis, will summarize the discussion.

The banquet will be served in the evening, with Dr. Love speaking on "Farming Our Range Lands." Adjournment of the conference will be at 9 p.m., according to the advance program.



AGRICULTURAL PLANE—A new all-metal monoplane designed especially for agricultural and forestry service, has been produced by the Transland division of Hi-Shear Rivet Tool Co., Los Angeles. Known as the "Ag-2," the craft is powered by a 600 h.p. engine. Fuel and liquid spray tanks are readily accessible, and the fuselage, for holding dust, is constructed to insure thorough and easy cleaning, according to the manufacturers. The plane has separate systems for dispensing liquids and solids, and both systems can be controlled singly or simultaneously by the pilot in flight. The hopper will hold 2,000 lb. low-density solids and up to 3,000 lb. of higher specific gravity materials. Liquids are carried in four separate tanks located two in each inner wing. The makers say they expect to produce the craft in several versions: two place, single place, open cockpit and closed cockpit.

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"Why are so many PROTECTIVE features engineered into the new H-25 PAYLOADER?"

This question is frequently asked of Ralph Beyerstedt, Executive Vice President of The Frank G. Hough Co. because of his more than twenty years of experience in charge of engineering.

"During the development of the H-25," Mr. Beyerstedt explained, "as soon as it became evident that we were going to obtain the increased capacity, production, ease of operation, speed and mobility we sought, our engineers then gave major attention to protective features for operational insurance against wear, maintenance, abuse, downtime and the like.

"The more than 10,000 small HA 'PAYLOADER' tractor-shovels that we have produced for steel mills, foundries and chemical and fertilizer plants operate under conditions which continuously subject the machines to dust, dirt, powder and foreign materials.

"Because these are sources of major headaches for owners and operators," said Mr. Beyerstedt, "we have given extra special consideration to elimination of the problems they cause."

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"Starting with the *triple* air cleaning system (1) we have provided a pre-cleaner and dual oil-bath air cleaners for engine intake, and crankcase breather tube (17).

"Next, each of the three oil systems is equipped with a cartridge-type oil filter (2). These take care of the engine oil, the hydraulic-system oil, the power-shift transmission and torque-converter oil.

"The self-adjusting, hydraulic service brakes (3) are *sealed* and the parking brake is enclosed in the transmission, operates in oil for greater dependability.

"The reservoir (4) of the closed, pressure-controlled hydraulic system has built-in cartridge-type filter and *sealed* dip-stick."

In discussing the components of the electrical system, Mr. Beyerstedt said, "There is a 12-volt system with the battery grounded direct to the starter housing; a non-vented, *sealed* generator (5); *sealed* ignition distributor (6); shock-mounted instrument panel (7) with solder-coated terminals and a plastic-coated wiring harness (8); *sealed* circuit breaker together with *sealed* ignition and starter switches (9) plus clutch-pressure warning device (18).

"*Sealed* teflon bushings are used extensively throughout with brake and

transmission disconnect mechanism (10) and valve control mechanism (11).

"These *sealed* ball joints (12) are used with gearshift linkage and *sealed* ball joints of a different size (13) are used with the accelerator linkage.

"The steering linkage uses *sealed* ball joints on the tie rods (14), and on the drag link (19). The steering bell crank (15) is *sealed*, also the spindle and kingpin assemblies.

"The boom arm mechanism has tapered roller bearings and dust covers on the bell cranks (16) and *sealed* mated bronze and steel bushings plus O-ring seals at all major pivot points."

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The carry capacity of the H-25 "PAYLOADER" is 2,500 lbs.—25% greater than has ever before been available in a tractor-shovel of its size and maneuverability, yet it easily loads and unloads box cars with narrow 6-foot doors. It is the only loader in its size range with *complete* power shift transmission—having 2 speed ranges forward and two in reverse. Power-steer is also standard so that operating speed and handling ease favors all-out production all day without operator fatigue.

Other plus features of the H-25 that mean more production, less maintenance and longer life are the exclusive power-transfer differential, wet-sleeve overhead valve engine, full-shift fuel capacity, 4,500 lbs. of bucket breakout force and 40° bucket tip-back at ground level.

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The H-25 "PAYLOADER" is effectively shielded against dust, dirt and foreign materials.



INSECT, PLANT DISEASE NOTES

Georgia Farmers Urged to Continue Insect Battle

ATHENS, GA.—The serious cotton insect situation continues to be critical. The survey, as reported on July 25, showed that the boll weevil infestation has taken another big jump—from an average of 22% to an average of 35% punctured squares.

The number of eggs deposited by bollworm moths decreased somewhat last week but many worms had hatched from the eggs laid the previous week. There are still plenty of eggs and worms present in most fields to justify control measures.

Many fields have the prospect of a good yield of cotton if insects are controlled until the crop is mature. There is strong evidence, however, that many farmers in South Georgia are thinking of stopping their control program. This is likely to cause them to lose ½ bale or more cotton per acre.

Farmers often lose their top crop of cotton to insects by stopping applications of insecticide too soon. This is usually the portion of the crop from which their profit would have come. Bolls are not safe from weevils until they are about 3 weeks old. Bollworms can destroy bolls until they are mature. Heavy aphid and spider mite infestations reduce yield, quality and staple length.

Farmers have been warned about the cotton insect situation and urged to continue applications for protection of their crop. It might be pointed out that each boll saved per foot of row will bring in about \$20.00 additional money per acre. This will pay for a lot of insecticide.—C. R. Jordan.



Boll Weevil Becoming Serious in Tennessee

KNOXVILLE, TENN.—Boll weevil infestations in the southern counties are becoming serious due to wet weather. Although the fields have shown only light infestations up to now, hatch-out from the overwintered weevil is going on at this time. It is at this time every season that infestations start getting out of control, when it appears to the grower that he has his fields free of weevil. What happens is, the egg laying of the overwintered weevil stops and most of the infested squares are on the ground. The squares pulled from the top, middle and bottom of the plant are not a true picture of what is going on in the field at this particular time.

Intervals in making square counts should be stepped-up in order to detect the infestation before it reaches 10% from the newly emerging weevils. It is important to keep infestations under control at this time in order to set as many of the bottom and middle bolls as possible before migration, which should come after Aug. 15. If infestations run as high as 10% at least three applications should be made at five day intervals in order to have insecticides on the plant to cover the entire eighteen day cycle.

Rains this week (July 28) limited survey. Survey was concentrated on the known infested fields in the southern counties. The average for the infested fields was 5% and it was 4% last week. The infested fields average is low, but counts will be higher next week due to the hatch out of the first generation of weevils. The infested

fields average was 22% at this time last year.

Boll worm infestations are general with heavier infestations being found in fields having applications of insecticide for boll weevil that do not have the proper insecticide for worm control added. Boll worm predators evidently are doing a good job of control in most fields. Evidence of feeding can be found in many fields but no worms were found. Infestations are light at this time.

Spider mites are becoming serious in many fields all over West Tennessee. Some fields are defoliating in the heavier spots. Infestations are becoming heavy in fields that have had no insecticide treatments this season. Infestations are unusual this year as build-up usually occurs during hot and dry weather.

Plant bugs have not increased in most fields, and damage is light. Control has been very effective so far this season.

Grape colopis are present in some fields but damage is light. This is a light tan beetle ¼ inch long. Controls aren't needed.

A slight increase in aphids over last week but damage is very light. Fields showing honey dew from aphid infestation should be treated. Direct insecticides to underside of leaf for control.—R. P. Mullett.

Insect Situation Light, Missouri Report Says

COLUMBIA, MO.—Outside the bootheel area, there is little damaging of crop. A few grasshoppers are scattered over parts of the northwestern counties, but we have seen few spots where control seems necessary. There is the possibility, however, of some injury to the margins of newly seeded small grain early in the fall.

There are also a few fields which continue to show injury from fall armyworms but extensive damage as experienced last year has not yet shown up.

Chinch bugs continue to be a problem in some fields of grain sorghum, corn and sudan. But again, this injury is largely a local situation and is not wide-spread. All in all, so far, this has been the quietest summer, as far as insects are concerned, that we've had in a long time.

During the latter part of the week (Aug. 2), corn borer egg masses began to show up in the counties along the Missouri River. Indications are that the peak in moth emergence will not come before the last of this week or the first of next, and the peak of egg laying sometime following that. It could change, but as of now, it looks as though the ideal time to treat for second brood in counties bordering the Missouri River and those to the north, will be sometime around the 15th of August.

Mosquitoes are bad. We had a bottom-land farmer tell us the other day that the flood took his crops, the finance company took his machinery, and now, mosquitoes are about to take his family.—Stirling Kyd and Geo. W. Thomas.



Grasshoppers Numerous, But Spray Reduces Them

MANHATTAN, KANSAS—The spraying for range grasshoppers on 88,000 acres of U.S. Government utilization land in Morton County has been completed. Counts of 20 to 35 per square yard were reduced to 1 or 2 per square yard. Aldrin was used at 2 oz. actual in 1 gallon of oil per

acre. There was no evidence of killing fish, birds, lizards or other forms of wildlife. Egg laying has started by most grasshopper species in that area.

The large yellow differential grasshoppers are causing considerable damage to silking corn in central and northern Kansas counties. Populations as low as five per square yard may destroy a third of the grain production by cutting the silks before pollination of the ear.

There have been reports of false chinch bugs from sweet corn, potatoes, sugar beets, and in stored wheat. These insects build up on pepper grass and travel to other plants and usually do not require control measures.

Corn at St. John (Stafford County) was found to be infested with first generation Southwestern corn borer in 75 to 80% of the plants. This is considerably higher than for the past few years.

Fall armyworms have been found in late corn in the Manhattan area.

Wheat bins should be probed and checked for surface infestation of stored grain insects near the granary doors. High moisture grain is most critical but any infestation should be fumigated before populations increase.

Spotted alfalfa aphids were found in Barber County. Populations can be expected to increase with hot dry weather.

More hessian flies were found in the midsummer survey than last year. Border counties on eastern and northern edges of the state have shown some hessian fly. Volunteer wheat will make conditions favorable for hessian fly increase this fall. Pawnee in Central and Western Kansas and Ponca in Eastern Kansas are our only resistant varieties if the fly free date is not observed.—David L. Matthew and Dell E. Gates.



Grasshopper Populations Reported on Increase

ST. PAUL, MINN.—In N.C. and N.W. districts grasshopper populations generally are low, ranging from non-economic to light with occasional fields showing high populations. In N.C. district two fields examined had 20 to 50 'hoppers per sq. yd. respectively. One field in southern Marshall Co. had 30 per sq. yd. In both districts the two-striped 'hoppers (*Melanoplus bivittatus*) were present as 4th instar and adults—majority adults. In W.C. district counts of 'hoppers continue low—some counts in Clay Co. range up to 18 per sq. yd.

Clear-winged 'hoppers (*Cammula pellucida*) in N.C. district; some egg laying probably has begun. Red-legged 'hoppers (*Melanoplus femurrubrum*) still hatching in some areas.

European corn borer apparently will not be a problem this year in field corn except perhaps in the S.W. and S.C. districts. There may be occasional fields in other districts which have high populations but generally the infestation is light. Pupation is beginning to appear in the S.W. and S.C. districts. The 1st pupa was observed July 25.

The corn leaf aphid is appearing on corn. At present most aphids are on the tassel but some were observed on emerging silks. Predator populations are high and should control this insect. Chemical control is not advisable—this aphid is not generally considered an economic pest on corn.

Pea aphid populations in alfalfa are down in all districts. Aphid pred-

ators are numerous and appear to be reducing the aphid numbers.

Beet webworm infestations in sugar beets have been higher this season than for the past several years. Spraying for control has been quite general in the Red River Valley—reports from the Moorhead area indicate that the entire beet acreage in that vicinity has been treated.



Northern Corn Rootworm Doing Damage in Wisconsin

MADISON, WIS.—A report of damage to Pierce County field corn occurred in untreated acreage that has been planted to corn several years in succession. Northern corn rootworms appear to be responsible for the fairly heavy damage. Similar acreage in the same vicinity where treatments had been applied was free from damage. Lodging of sweet corn due to northern corn rootworm damage has been observed in Dane County.

Among the forage insects, potato leafhoppers averaged about one per sweep in alfalfa in southern sections, but counts of 8 per 100 sweeps or lower were recorded in Buffalo, Clark, Jackson and Wood counties. Alfalfa plant bugs are most abundant in alfalfa, but tarnished plant bugs have high populations in some fields. Rapid plant bugs have the lowest population of the plant bugs which help reduce alfalfa yields.

Red-legged grasshopper populations continue to be variable and, while generally low in southern counties, an average of about 75 per square yard infested a Washington County field, 12 per square yard in a Dodge County field, and 30 per square yard in a Dane County field where they were in the 2nd and 3rd instars. In lighter soils they are in the 3rd and 4th instars, but a few are already mature.

In Jackson, Clark, Buffalo and Wood counties grasshopper nymphs ranged from 9 to 27 per square yard. Weather conditions appear to have favored the survival of economic populations of grasshoppers. Simultaneous treatment for forage insects can be made.

Small armyworms (2nd instar) were observed in late peas during the week in Columbia County. Counts of 2-3 per square foot were made. Most of the pea acreage has been harvested and present possibilities of damage to peas appear unlikely. Also, there is little threat to small grain as harvest is well under way in many sections.

While a few were noted in a very few alfalfa fields last week (Aug. 1.), none were noted later, and with the major portion of the first crop harvested, conditions in forage do not appear favorable for armyworms. A localized outbreak in a Racine County beet field on July 25, was reported but parasite eggs were present on nearly all armyworms. However, a few small armyworms without parasites were observed feeding in the emerging husks of sweet corn in Columbia County on July 26. The time is past when armyworms usually cause trouble, but in the near future, should trouble appear, it seems that late planted sweet corn and weedy field corn would provide favorable locations.

Adult northern corn rootworms were observed in corn silks in Walworth and Rock counties.

In Walworth, Rock, Green and Lafayette counties about 11% of the first brood of the European corn borers were in the 3rd larval instar, 49% in the 4th, 34% in the 5th and 6% in the pupal stage by July 30.

A corn earworm infestation of early market sweet corn in southeastern Juneau County was reported. Two earworm moths caught at Janes-

ville on July 26 is the only report of earworm moths this week in black-light insect trap catches.

The corn leaf aphid is building up its population in field corn tassels in the southern tier of counties, but in no fields observed were there more than 6% of the tassels infested.

Sap beetles are becoming quite abundant around the places where corn borers are feeding on corn. This insect is also reported in other locations. It is associated with rather moist parts of damaged or decaying plant materials.

War Against Field Mice Under Way in California

SACRAMENTO, CAL.—The war against meadow mice in California's counties of Modoc and Siskiyou has been extended to the air under the control and supervision of agricultural commissioners of the two counties.

An agreement on the use of zinc phosphide bait by dusting aircraft was reached at a meeting attended by state, county and local agricultural experts, representatives of the fish and wildlife service and ranchers.

The meeting was called by Clifford Jenkins, manager of the Tulalake Growers Association, and Kenneth Baghott, Tulalake farm adviser, after farmers became alarmed when hand distribution of bait failed to check the mouse infestation. Surveys indicate that the pests moved a mile in a week and farmers report that the infestation is much worse than in 1957 when agriculture suffered a heavy loss in the Klamath Basin.

Farmers in the area also are seeking approval of the use of 1080, which has been prohibited for aerial distribution by state regulations.

It is estimated by farmers that at least 15,000 acres of field crops are heavily infested with rodents. Serious damage is being caused in standing Hannchen barley and wheat fields, alsike clover, alfalfa fields and in blue grass being raised for seed.

Predators Being Used to Control Forest Aphids

PORTLAND, ORE.—Predator beetles from Europe are being used in the Northwest for control studies with the balsam woolly aphid which threatens the fir stands of Oregon and Washington.

Eight shipments of the beetles have been brought to Oregon to date by Oregon State College entomologists. These beetles feed on the aphids. They do not eat other insects and are not harmful in any way, according to Dr. Julius Rudinsky, OSC forest entomologist.

OSC and the Pacific Northwest forest and range experiment station, Portland, are cooperating on the project.

The aphid now is in epidemic stage on Pacific silver fir and subalpine fir in western Oregon and Washington.

More than 500,000 acres of trees are infested. Noble and Shasta red fir are least affected and appear to have some degree of resistance to the aphids, Dr. Rudinsky said.

Four shipments, totaling 8,600 beetles, were flown to this country from Czechoslovakia; three totaling 625 from Sweden, and one of 700 from Maine. In Oregon, release sites were near Dallas, Corvallis and Willamette Pass, and in Washington around Green River, Toutle River and Wind River.

Minimum Damage Caused By Aphid in California

SACRAMENTO, CAL.—Predators and parasites generally have controlled the spotted alfalfa aphid in northern California this season but there are scattered indications that continued warm weather will increase the threat during the weeks ahead.

"There has been a minimum of damage in the northern part of the

State until now," reported Robert W. Harper, chief of the State Bureau of Entomology. "I am not aware of any actual treatment which has been required north of Kern county."

Mr. Harper added that it was very possible there will be an upward surge in aphid population from now on. Last year the aphid build up started in June and substantial damage had been done by this date although the heaviest populations did not occur until August.

Theodore Tongren, Yolo county farm adviser, reported some increase in aphid population in scattered fields as the crop approached its fourth cutting.

Gordon Morehead, Sacramento county farm adviser, reports a build-up of damaging stink bug populations in pear orchards throughout Sacramento county.

These pests, rare in the area until last year, have been reported in orchards in the Sacramento river delta

region and elsewhere in the county. They have been a problem for years, however, in foothill orchards which are not as cleanly cultivated as those in the valley.

Leaf Rollers Show Up On Indiana Orchard Trees

VINCENNES, IND.—Injury by red-banded leaf roller in most orchards is light. However, we visited one orchard this week where a heavy infestation was present (Aug. 5). Both newly hatched and full-grown larvae, as well as pupae, were present, indicating that broods were overlapping. As near as could be determined, lack of control was due to failure to secure proper spray coverage. To control red-banded leaf roller it is necessary to cover the underside of the leaves and the centers of the trees thoroughly. Removal of sucker growth on the trunks and scaffold limbs and burning them to kill off the larvae present is also beneficial.

Adults of the red-banded leaf roller are still coming to bait traps.

Adults from codling moth larvae that hatched July 10 began emerging in the insectary on Aug. 4. Early third-brood worms will begin entering apples in orchards in this area about Aug. 12; however peak activity for third-brood larvae will not occur until the last of August and first of September. Codling moth injury in commercial orchards in this area is extremely light to date.

Bait trap captures of oriental fruit moth adults have tapered off since July 28, indicating that peak activity for adults occurred between July 20 and 28. Infestations in most peach orchards are very light.

Populations of orchard mites in several orchards are still high enough at this time to warrant control measures. Both European red mite and two-spotted spider mites are present. The frequency of heavy two-spotted spider mite populations is increasing.—D. W. Hamilton.



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Successful Tests Indicate Cattle Grubs Controlled by Including Toxicant in Feed

By Dr. R. A. Sturdy

Moorman Manufacturing Co.
Quincy, Illinois

IN the late summer of 1956 the reports of Dow Chemical Co., the Kerrville (Texas) Laboratory of USDA and others showed that certain organic phosphates, particularly Dow ET-57 (Trolene), were effective in controlling cattle grubs when given orally at a dosage rate of 100 to 110 mg. per kilogram. The next step, naturally, was to answer these questions: Since ET-57 is effective orally as a single dose, is there not a more efficient method of practical administration? Would the compound be safe and effective if given through the feed for several days or even months at a much lower dosage level?

To find the answer, it was necessary to go to the farmer and rancher to find out if they're interested in grub control—and, if so, the method they prefer to use. First, it should be pointed out that present-day livestock agriculture is very cost-conscious. Every rancher knows that handling and working cattle costs money regardless of the cost of medication. Antibiotics, phenothiazine, coccidiostats and all forms of medicated feeds have reached a stage of popularity based on sound economics. The modern, preferred way is a herd, group or flock treatment, not an individual treatment which requires more labor and higher costs.

Farmers have been controlling plant pests with systemic insecticides with very good results. It seems only natural that the animal's body could utilize suitable systemic insecticides to protect itself from parasitic life in the same way that a plant protects itself. Antibiotics and sulfa drugs control bacterial infections by systemic activity.

In understanding how systemic insecticides behave, it's essential to have a knowledge of their breakdown within the animal's system. Through research we know that in developing a control for cattle grubs, the actual killing of the grub is only part of the job. The other part is represented by taking an effective chemical and determining its method of use, its breakdown, its rate of disappearance, and if any of the metabolites are deleterious to humans.

In feeding animals chemicals, there is always the problem of undesirable residues remaining in the tissues at the time of slaughter. We wanted to determine thoroughly the likelihood of any such residues remaining in the meat. Would they be deleterious to humans? When would they disappear?

Prior to this time, ET-57 had not been successfully administered when mixed with feed at low levels. So, with the cooperation of the Dow Chemical Co., it was decided to run a series of tests giving ET-57 in the feed.

Early in September, 1956, Hereford heifer calves weighing around 300 pounds each were brought to the Moorman Research Farm near Quincy, Ill. The calves were raised near Highmore, S.D., an area recognized as being a good source of cattle for grub research. The heel fly is quite active there. Both the common and northern cattle grub are normally present.

After a period of adjustment, the cattle were allotted and started on

experiment Sept. 28, 1956. They were limited-fed corn, oats and protein supplement but were allowed free access to all the alfalfa hay they would consume. The calves were fed ET-57 in their protein supplement along with the grain.

Individual records of weight gain and blood cholinesterase gave a good indication of lack of toxicity. The calves consumed their feed containing ET-57 readily. There was no indication of adverse effects. Actually the continuously fed calves received ET-57 in their feed for 8 months, at which time they were slaughtered and residue determinations were made.

Table 1 shows the results of grub control.

The results are excellent for the control of cattle grubs in all levels fed. These calves from South Dakota had a uniform heavy infection of both the common and northern cattle grub. Average daily gains on a wintering ration were good and showed that ET-57 was not toxic to cattle at the levels fed. The accompanying pictures show the good condition of the cattle in mid-March at the time grubs developed in the backs.

Calves from Lots 1, 2, 3 and 4 were slaughtered at 0, 35 and 63 days post-medication and examined thoroughly for any gross pathology. There was none apparent. Histological microscopic sections were made of all the internal organs such as brain, heart, lungs, liver, kidneys, adrenals, uterus, etc. There was no indication of any abnormality that could be attributed to ET-57.

Since ET-57 has a distinctive odor, there was some conjecture as to whether the odor and flavor might be imparted into the meat. Taste panel tests were therefore conducted with this point in mind. These tests compared the meat taste of control animals with that of the other animals receiving all three levels eight months of continuous feeding. The latter animals had received ET-57 in their morning feeding two or three hours before slaughter, yet the tests indicated no odor or flavor in either the lean or fat meat.

Residue determinations by chemical methods were made by Dow Chemical Co. scientists on various organs and tissues. Their work indicates that the residues are very small and that they disappear quickly when feeding is stopped.

Numerous tests were made during the eight months to determine the effect of ET-57 on red cell cholinesterase which is considered a measure of toxicity. This was shown to be proportional to the ET-57 intake level.

- Lot 1—Control, no ET-57
Normal
- Lot 2—4.25 mg/kg day ET-57
Practically normal
- Lot 3—8.5 mg/kg day ET-57
40 to 50% depression
- Lot 4—17.0 mg/kg day ET-57
60 to 75% depression

After removal of ET-57 from the ration, cholinesterase became normal in all lots after 60 days.

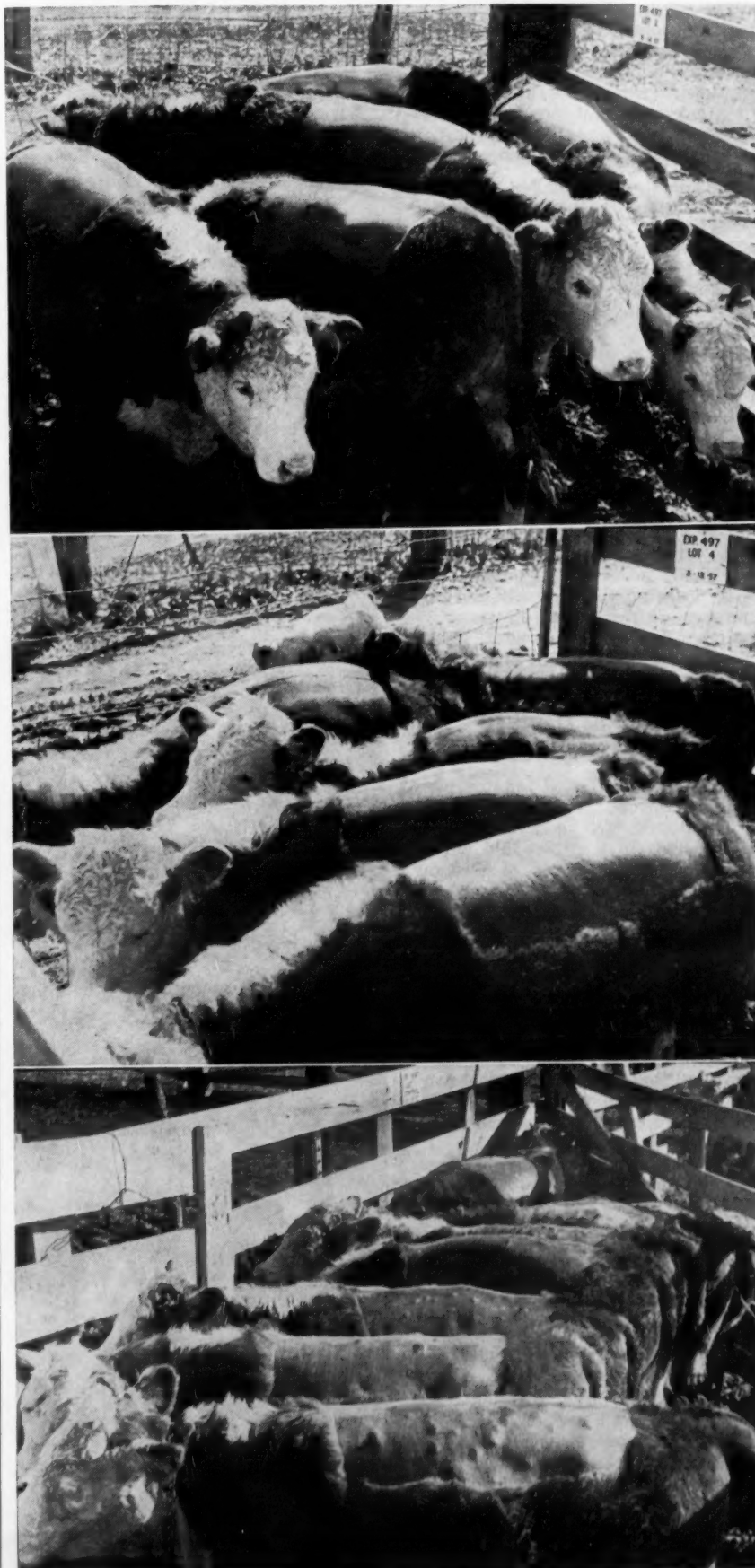
During the past winter and spring,

further work on the feeding of ET-57 and other organic phosphorus compounds has been carried on at the Moorman Research Farms as well as at several other institutions. They include Dowco 109 and American Cyanamid's Dimethoate. Results have not yet been released, but they indicate that shorter feeding periods of grub-controlling agents may give satisfactory results.

The overall conclusions of these initial tests are most encouraging. They indicate that grubs can be safely controlled by medication in the feed without after effects. There are still many problems, but further research can and will find the solution. The Food and Drug Administration has not as yet sanctioned the use of Dow ET-57 or any other grub-controlling organic phosphate in feeds.

HOW TO DOUBLE OUTPUT

OTTAWA—Canada could double her annual production of agricultural products by more adequate use of fertilizers, according to Dr. K. F. Nielson, head of the Soil Fertility Section of the Federal Department of Agriculture's Experimental Farm Service. He made the statement before the government's Land Uses Committee. He said that many farmers use small quantities of fertilizer and then stop because production shows no appreciable increase. If, however, they increased the amount used from four to 40 lb. an acre they could double current production.



BARE FACTS REVEALED—Animals in grub control experiment reveal the extent to which tests were successful. The top two photos show animals involved in lots two and four, while the lower shot gives graphic evidence of grubworm damage in the untreated cattle. Although the toxicant was given through the feed, there was no indication of odor or flavor being imparted to the meat, in either the lean or fat. Further tests indicated that the toxic residues were small and that they disappeared as soon as the feeding was halted. The test animals, all from South Dakota, had a uniform heavy infection of both the common and northern cattle grub at the beginning.

TABLE 1

| | No. Calves | Avg. Daily Gain in lbs. for 7 months | Avg. No. Grubs Per Animal | Total ET-57 Per An. |
|---|------------|--------------------------------------|---------------------------|---------------------|
| Lot 1—Control—No ET-57 | 9 | 1.39 | 30.8 | None |
| Lot 2—4.25 mg/kg/day ET-57 continuously | 5 | 1.43 | 0 | 0.5 lb. |
| Lot 3—8.5 mg/kg/day ET-57 continuously | 5 | 1.35 | 0 | 1.0 lb. |
| Lot 4—17.0 mg/kg/day ET-57 continuously | 5 | 1.31 | 0 | 2.0 lb. |

Soil Fertility Plan, Begun Last Year, To Be Extended to 25 Georgia Counties

ATLANTA — Plans for launching the soil fertility program, begun last year in six pilot counties, in 25 additional counties in four sections of Georgia during the coming year have been announced by the Agricultural Extension Service, University of Georgia College of Agriculture.

C. R. O'Kelley, extension agricultural leader, said that the enthusiastic acceptance of the program by farmers and the cooperative support of business, farm and civic organizations given county agents in the six pilot counties last year has justified expansion of the effort into other sections of the state. The six pilot counties, where the intensified soil fertility program will be continued, are Coffee, Colquitt, Laurens, Thomas, Tift and Worth.

Counties to begin programs emphasizing the importance of soil fertility to successful farming form four groups in the extreme northwest, central northwest, southwest and eastern sections of the state. The extreme northwest counties are Dade, Walker and Chattooga.

Northwest district counties are Coweta, Meriwether and Spalding. Dooly, Sumter and Terrell are the Southwest district counties.

The eastern block of participating counties are Burke, Glascock, Jefferson, Richmond and Washington.

Eleven counties in the Southeast district also are included in the eastern section. These counties are Bulloch, Candler, Emanuel, Evans, Jenkins, Johnson, Screven, Tattnall, Toombs, Treutlen and Wayne.

Mr. O'Kelley said that the soil fertility program will consist of an all-out effort to emphasize the value of soil testing for all crops and pastures and then following soil test recommendations in making applications of lime, mixed fertilizer and nitrogen. He pointed out that study of soil test reports from these counties show that fertility levels are generally low and that many farmers are using the wrong kinds and amounts of fertilizer.

County agents in each county will seek to enlist the cooperation of every farmer and the full support of every business and civic organization in this county-wide

Connecticut Field Day Scheduled for Aug. 16

NEW HAVEN, CONN.—The Connecticut Agricultural Experiment Station is now completing plans for a field day on Saturday, Aug. 16, at Lockwood experimental farm in Mt. Carmel. Commercial growers, homeowners, scientists, and all others interested in plant science research are invited. J. Peter Johnson, entomologist, is general chairman.

Principal speaker is Richard Bradfield of Cornell University, agronomist and a trustee of the Rockefeller Foundation. Dr. Bradfield will speak on "Scientific Research and the Agriculture of the Future."

Under the direction of Dr. Saul Rich, plant pathologist, the station staff has completely reorganized the program of tours to experimental plots to begin at the new central location of the field day tent and exhibit building. Tours start at 10 a.m. and will continue throughout the day. Some 1,000 or more guests are expected.

More than 40 annual field days have been held at the experimental farm in Mt. Carmel. The outdoor research center has now been named Lockwood Experimental Farm in recognition of the donor. The 61-acre tract, acquired in six parcels over 43 years, has been purchased with income from the William R. Lockwood trust fund, of which the station is beneficiary.

effort to increase farm income by raising the fertility level of the soil, he declared.

The extension agricultural leader said that the county agents will be supported in this program by extension agronomists headed by J. Ralph Johnson. Leading such assistance from the state extension staff will be soils and fertilizer agronomists, P. J. Bergeaux and Ralph L. Wehunt. Other subject matter specialists will help as occasion demands.

Mr. O'Kelley pointed out that extension has the close cooperation of the fertilizer industry in its soil fertility program. Both the Georgia Plant Food Educational Society and the National Plant Food Institute are fully supporting the work, he added.

Orchard Pests Under Control in Indiana

VINCENNES, IND.—Although local showers occurred during the past week, total rainfall was considerably less than that reported for the two preceding periods. Orchards are gradually drying out and growers are getting back on schedule with their spraying and orchard work. Growers are continuing to harvest early peaches of a high quality. Insect injury on peaches is very low.

Mite populations continue to be heavy in apple orchards and in some instances peaches, where control measures have been neglected. The predominant species present in this area continues to be the European red mite.

Adult leaf rollers have been coming to bait traps in comparatively large numbers since July 20. Abundance of larvae is expected to increase during the next 10 days. The predominant

CROPLIFE, Aug. 11, 1958—7

species in peaches is *Platynota flavidana*, while that in apple orchards is *Argyrotaenia velutinana*, commonly called the red-banded leaf roller.

Third-brood larvae of Oriental fruit moth are starting to enter peaches. Bait trap captures indicate that second-brood adults have been active in orchards where early season control was poor since July 18.—D. W. Hamilton.

RAIN SIMULATOR

WASHINGTON — A new device that simulates rainfall has been developed to speed up field-plot studies involving measurement of water runoff and soil erosion, the U.S. Department of Agriculture reports. This apparatus, devised by engineers and soil scientists of USDA's Agricultural Research Service in cooperation with Purdue University, materially reduces the time and cost of research on various phases of soil and water conservation.

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New Du Pont UAL-S permits you to take advantage of the well-known conditioning effect of sulfates in fertilizers. A small amount of ammonium sulfate added in a finely dispersed form as in UAL-S is equivalent to a much larger amount added dry to the mixture . . . ammonium sulfate means better, more uniform conditioning. All of your fertilizers will benefit from nitrogen derived from UAL-S, because it combines two efficient forms of nitrogen with ammonium sulfate to provide added sulfur . . . an essential plant nutrient with recognized agronomic value.

Regular mixtures cure well with UAL-S,

are free-flowing and resist caking. In granular mixtures, UAL-S aids in producing good yields of hard, round, firm granules that store and distribute well. UAL-S is non-corrosive to fertilizer manufacturing equipment, including mild steel and aluminum, and it's safe—handles at moderate pressure, and there's no danger of flash fires.

Du Pont specialists can give you at-the-plant advice on proper use of UAL-S in your fertilizer mixtures. They stand ready to assist you in profitably formulating mixtures containing UAL-S. For further information on UAL-S, fill out and mail the coupon.

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| Nitrogen Content | 42.5% | Composition: Parts/100 | |
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| Pressure | 15 psi at 60°F. | Ammonium Sulfate | 10 |
| Specific Gravity | 1.13 | Ammonia | 27.1 |
| Fixed to Free Ratio | .9 to 1.0 | Water | 15.1 |
| | | CO ₂ | 9.0 |

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Dear Sirs: Please send me more information on UAL-S.

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Industry Patents and Trademarks

2,845,340

Method of Making Complex Fertilizer. Patent issued July 29, 1958, to Kurt H. Karbe and Wilhelm F. Boos, Castrop-Rauxel, Westphalia, Germany, assignors to Gewerkschaft Victor, Castrop-Rauxel, Westphalia, Germany. A method of making a complex fertilizer, which includes the steps of: breaking up raw phosphate by means of nitric acid, admixing thereto magnesium sulphate ($MgSO_4$), neutralizing the thus obtained mixture up to a pH value of between 4 and 5 while adding thereto a potash salt at the latest when said mixture has reached a pH value of 4 to 5, continuing the neutralization of the thus obtained mixture up to a pH value of approximately 7.5, simultaneously introducing ammonia and carbonic acid up to a pH value of approximately 8.5, and increasing the

CO_2 content of the mixture up to approximately 3.5% CO_2 .

2,845,401

Ureaform Fertilizer. Patent issued July 29, 1958, to George R. Gilliam, Prince George, Va., assignor to Allied Chemical Corp., New York. In a process for the production of pelletized urea-formaldehyde fertilizer of high bulk density of 36-46 lbs./ft. involving reacting urea and formaldehyde as the sole reactants in aqueous solution to precipitate from the solution a reaction product of urea and formaldehyde containing water-insoluble nitrogen having a high activity for use as a fertilizer followed by separating the precipitate from the solution to produce a wet cake containing 55-85% by weight water which on drying tends to break easily into a powdery mass of low bulk den-

sity, the improvement which comprises admixing the wet cake with about 2.5-4.5 its weight of dried urea-formaldehyde product previously produced in the process and having a particle size below 48-mesh size to produce a mixture containing 15-24% by weight water, kneading and pressing said mixture of wet cake and dried urea-formaldehyde fertilizer until a uniform mass is produced, and heating said uniform mass by contact with heated drying gas in a rotary drier to drying temperatures not in excess of $110^\circ C.$ to produce a dry pelletized product having a bulk density of 36-46 lb./ft.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

BLOX, in capital letters, for insect

repellent lotion. Filed June 27, 1957, by Aids, Inc., Palm Beach, Fla. First use Oct. 10, 1956.

Mi-D-Stroy, in capital letters, for insect spray. Filed Nov. 22, 1957, by Lehman Bros., Cleveland, Ohio. First use Dec. 3, 1953.

FDA FEES

(Continued from page 1)

that at the advent of the Miller amendment, providing for establishment of residual tolerances of pesticidal chemicals in production of agricultural products, FDA acted in the dark and fixed the previous fee requirements on the basis of estimated costs.

The law, however, requires that fees assessed in the Miller amendment to the FDA act, as well as other service operations available from the U.S. government, shall be assessed against the operator who uses U.S. government services.

Operating under the crude rule of thumb estimate of cost of fee decisions on pesticidal chemicals as originally determined by FDA, it has been learned that FDA costs are far in excess of their original estimates.

FDA officials say that their study, laboratory investigation and other examination problems of scientific material submitted by applicants for residual tolerances for pesticidal chemicals is under a cost accounting study, resulting in findings which brought on the decision to raise fees starting Sept. 1, 1958.

PESTICIDE OUTPUT

(Continued from page 1)

amounted to 125 million pounds in 1957.

Production of acyclic pesticides and other acyclic organic agricultural chemicals amounted to 104 million pounds in 1957, compared with the 96 million pounds reported for 1956; sales were 94 million pounds, valued at \$46 million, in 1957, compared with 57 million pounds, valued at \$38 million, in 1956.

The preliminary statistics on production and sales of pesticides and other organic agricultural chemicals, given in this report, are more than 95% complete. Complete statistics will be given in the commission's final report on the production and sales of synthetic organic chemicals, which will be issued later this year, the tariff commission says.

KETONA

(Continued from page 1)

hydrous ammonia plant in the United States based entirely on coke oven gas. The first expansion of Ketona Chemical, a plant to produce nitric acid and nitrogen solutions, was completed early in 1956.

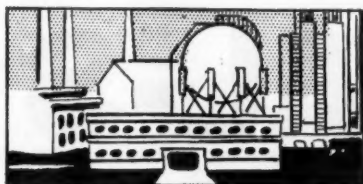
Gas for the ammonia plant is supplied from Alabama By-Products' coke oven plant at Tarrant. Supplies of both coal and dolomitic limestone will come from Alabama quarries.

In commenting on the new facilities, Mr. Neal indicated that the firm will be in a position to provide the trade in the Southeast with a nearby source of supply and 24-hour-a-day delivery service.

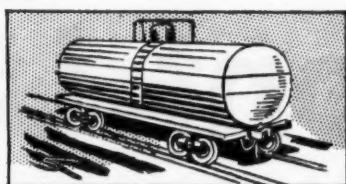
Sulfur Production

WASHINGTON—The domestic sulfur industry produced 400,957 long tons of native sulfur and 63,737 tons of recovered sulfur (of a purity of 97% or greater) during May, according to reports of producers to the Bureau of Mines, U.S. Department of the Interior. Producers' stocks of native sulfur decreased slightly over the previous month, and at the end of May totaled 4,606,431 tons.

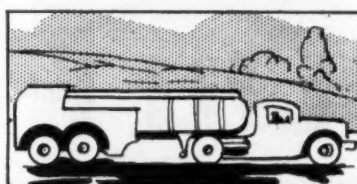
many NH_3 Producers have:



FACTORIES



RAILROAD CARS



SOME HAVE TRUCKS

BUT ONLY

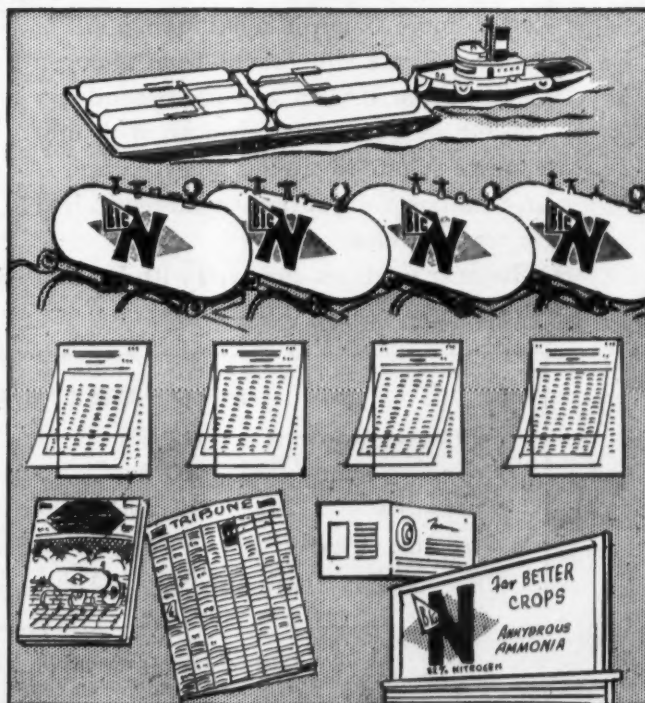
has these extras:

OUR OWN BARGES—They insure adequate delivery throughout our distribution area and in effect bring our giant ammonia plant at Lake Charles, La., right next door to our distributors.

APPLICATOR STOCKS—We stock adequate supplies of applicators and equipment at strategically-located warehouses, within easy reach of every distributor. We have an easy-pay financing plan to aid our distributors sell applicators.

FERTILAY—This is an exclusive, patented method used by Big N to make it possible for every farmer to understand his soil analysis and to interpret his plant food needs.

COMPLETE ADVERTISING PROGRAM—Direct mail to every distributor's prospect list takes technical information and "here's how" information to the farmer's own mailbox. Magazine, newspaper, billboard and radio advertising carries the story of Big N throughout our distribution area.



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NEW IBERIA, LA.

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FOR COMPLETE INFORMATION

Send this coupon to our home office at Memphis or any division office. We believe our plan of advertising, merchandising, selling and financing will increase your volume and your profits. We should like to discuss this with you.

(NAME)

(ADDRESS)

Postal Guide for Direct Mail Advertising

Postal rates are up, and are going higher on some forms of direct mail advertising. Follow this guide to get the most for your postage dollar.

By Jack Bedford

When President Eisenhower recently signed the bill for the largest postal rate increase in history, farm stores and manufacturers who use direct mail advertising were suddenly confronted with a major hurdle in advertising mailing costs.

It is important to realize that postage costs on direct mail advertising can be a major cost factor, and that close examination of the new postal rate bill will reveal several ways to help feed advertisers save money.

Here are some suggestions and ideas to help save money on direct mail advertising:

DON'T USE FIRST CLASS: First class postage rates have received the major share of the attention in newspaper accounts of the new postal rate increase. Firms using first class direct mail advertising will find that their postage costs will be up one third. And, if you have found first class mail successful in your past promotions you may feel that you can afford the 1¢ increase.

However, many farm stores long ago discovered that third class mail is just as effective as first class for advertising—in fact, better in many cases. For instance, some advertisers have found regular government post cards (2¢, now up to 3¢) are no more effective than cards mailed on the third class basis. These cards tell the same story about farm chemicals and will help save money on direct mail advertising.

When advertising is mailed first class, it is forwarded to customers at their new addresses or returned to you at no additional cost. But, this does not give you an opportunity to correct your mailing list because you do not know the new address of your customer.

For instance, a customer of your farm store may move to a new county or a new state. Your first class mail will follow him for years even though he is not a potential customer of your business.

On the other hand, when you use third class direct mail with Form 3547, you know the new address after each mailing. Thus, you can correct your mailing list and eliminate all "dead wood" to save money on future mailings.

USE THIRD CLASS BULK MAILINGS: Regular third class postal rates advanced from 2¢ to 3¢ per piece of direct mail advertising Aug. 1.

Bulk rates for third class mail do not advance until Jan. 1, 1959. It then goes from the former 1½¢ rate to 2¢. And, on July 1, 1960, it will advance another one half cent to the top of 2½¢ per piece mailed. This is still ½¢ less than the regular third class rate when not mailed in bulk.

Bulk mailing permits increase from \$10 to \$20 on Jan. 1, 1959. This will tend to offset the saving for farm stores using third class bulk mailings. However, there is still a substantial dollar saving if you make

bulk mailings on a regular basis.

For instance, a farm supplier making a regular monthly mailing to 1,000 customers would have these costs as of Jan. 1, 1959 (more savings during the last months of 1958 not counted in this chart).

| | |
|---|-------|
| First Class Mail—1,000 pieces mailed at 4¢ for 12 months . | \$480 |
| Third Class Regular Mail—1000 pieces mailed at 3¢ for 12 months | \$360 |
| Third Class Bulk Mail (Until July 1, 1960)—1000 pieces mailed at 2¢ for 12 months plus the \$20 bulk mailing permit | \$260 |
| Third Class Bulk Mail (After July 1, 1960)—1000 pieces mailed at 2½¢ for 12 months | |

plus the \$20 bulk mailing permit \$320

As you can see from this chart, there is a considerable saving for a farm supplier using the bulk mailing third class rate for his advertising. The savings increase as the number of pieces mailed increases. Or, if your mailing is not up to 1,000 pieces a month, you may find it to be just about as inexpensive to use the regular third class mailings instead of purchasing the bulk mailing permit for \$20.

PRINT PERMIT NUMBER ON ADVERTISING MATERIAL: Third class mail can be mailed with pre-cancelled stamps (postage stamps already cancelled) or by a permit number printed on your envelope or mailing piece.

Some farm suppliers feel that the use of pre-cancelled stamps adds to the value of the mailing. It lets your customers know that you have paid for the postage just as they do on their own personal mail with government postage stamps.

On the other hand, some customers who are disgusted with the postal rate increase may wonder how you can use a 2¢ stamp for your advertising when it costs them 4¢ to mail a letter.

When you print your permit number on the mailing piece, you can save money. You do not have the

cost of sticking a stamp on each direct mail advertisement or envelope. You do not have an investment in pre-cancelled stamps that can only be used for third class mailings.

You can buy 1,000, 10,000 or 1 million envelopes all printed with your return address and mailing permit number at no extra cost. Postage is paid only when the mail is delivered to your local post office for handling.

MAIL NOW: Since the postal rates have advanced, many advertisers have made plans to curtail or eliminate all direct mail advertising. This provides a promotion-minded farm store with a wonderful opportunity to cash in on the lack of competition.

Your competition at the mail box will be less.

Starting a direct mail advertising campaign now to reach your customers in your trading territory will pay off—even with the higher postal rates—if it is well planned, slanted to your customer's interests, and conducted on a consistent basis that takes full advantage of the best postal rates under the new law.

Fertilizer Control Officials Plan Meeting

WASHINGTON—The 12th annual meeting of the Association of American Fertilizer Control Officials will be held at the Shoreham Hotel here Oct. 17, B. D. Cloaninger, Clemson, S.C., has announced. A meeting of the States Relations Committee will be held the evening of Oct. 16.

In addition to reports by investigators and committee chairmen, the program will include:

Presidential address by J. J. Taylor, Tallahassee, Fla.; "Current Agricultural Trends," Dr. Oris V. Wells, Agricultural Marketing Service, U.S. Department of Agriculture, Washington; "Agronomic Evaluation and Use of Fertilizer Consumption Statistics," Dr. Woody N. Miley, University of Arkansas; "Progress Report on the National Plant Food Institute Chemical Control Research Project," Dr. Vincent Sauchelli, National Plant Food Institute, Washington; "Some Observations on Labeling Specialty Fertilizers," E. A. Epps, Jr., Baton Rouge, La.; "Materials Used in the Manufacture of Mixed Fertilizers," Dr. Richard Adams and Walter School, U.S. Department of Agriculture, Beltsville, Md.

Delaware Department Receives New Name

NEWARK, DEL. — A change in name of one of the departments of the University of Delaware School of Agriculture has been announced by George M. Worrlow, dean. The new name is Department of Agricultural Biochemistry and Food Technology. The former designation was Department of Agricultural Chemistry. Dr. G. Fred Somers who was chairman of the department of agricultural chemistry will serve as chairman of the new department.

In discussing the change, Dean Worrlow pointed out that the scope of work being carried out in the department is broader than the former name implied. The department's research is concerned principally with plant biochemistry and basic aspects of food technology.

The department will continue to provide analytical services such as analysis of soil samples from farmers and experimental plots and to provide advisory service in chemistry and biochemistry for other School of Agriculture staff members.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
CropLife Marketing Editor

There is a class of fertilizer dealers who firmly believe in "selling on the farm" and who have built up profitable route systems to prove their point. Route selling, they say, provides that regular contact with the customer is important in keeping and expanding business.

The route system helps the dealer to "put sales machinery into action every day of the year" whereas a store operation is dependent upon the customers' active buying urges for business.

Many route selling attempts have been unsatisfactory because the type of salesman employed was not good, nor properly trained in selling. There was no coordinated, consistent program of advertising and sales promotion to back such selling efforts. It was work which was done during "slow" months, when the dealer felt the need for larger volume.

Dealers who boldly set up year-around routes, and who show farmers that they could maintain such a schedule, calling on them at definite dates and giving quick delivery, prosper because they got more total business from their customers.

Route salesmen can keep their eyes open for chances to sell poultry and barn equipment, health products, farm appliances, water systems and many other items.

Dealers operating routes learn that they could control credit better because they see their customers more often and can make personal collection attempts. By visiting farmers regularly they got an opportunity to know them better and learn of their financial capabilities.

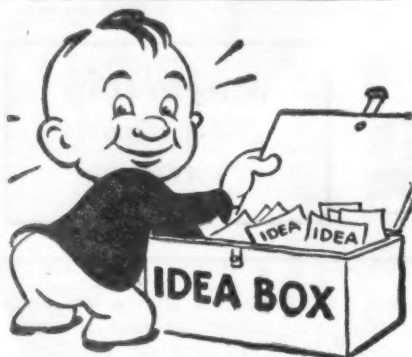
Still another advantage of this system is that additional employees contact farmers regularly. This means that in addition to the dealer-owner, other salesmen are aware of business-getting responsibilities and opportunities.

The route system can give the average merchant a higher type of employee. This new type of employee is able to sell; he often gets a sizeable commission in addition to a base salary, and he is almost in business for himself. This type of employee salesman has been lacking in many retail establishments.

Route salesmen must not only be able to sell, they must also be good collectors. They become adept at customer relations, for they deal with large volume customers every day and they know how important it is to get repeat business.

Through their experiences, too, these new employees who are able to sell and service well, are learning that farmers are volume buyers. They soon learn that the farmer may buy several hundred dollars worth of fertilizer a year and some many times more than that.

They also learn that sales of poultry and barn equipment, hand and automatic, milking machines, water systems, farm freezers and other items can often be made very easily to these customers, sales which swell commission checks.



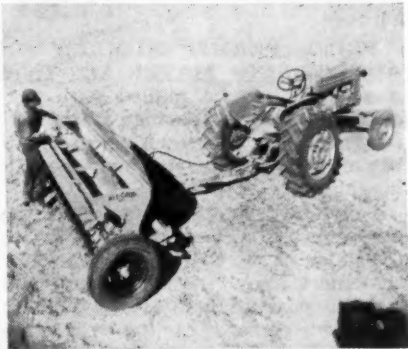
What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7046—Vibrators

The Cleveland Vibrator Co. has available literature showing the use of "air-cushioned" vibrators which are said to reduce noise by "cushioning the vibrator piston's thrust. A small amount of air is released ahead of the piston," the company explains. "This air creates a buffer as the piston moves back and forth, reducing noise to a minimum," it is claimed. Check No. 7046 on the coupon and mail it to secure details.



application instructions for the use of Co-Ral against all major livestock insects. The product, researched as Bayer 21/199, has recently been registered by the U.S. Department of Agriculture for use on beef cattle, horses, sheep, swine and goats. The folder may be secured by checking No. 6782 on the coupon and mailing it to Croplife.

No. 6784—Product Cans

An illustrated, two-page bulletin to help the packager of dry, semi-liquid or liquid products select a can for these products has been issued by George D. Ellis & Sons, Inc. Thirty eight different types of cans are shown in the bulletin, called product memo No. 112, and they are broken down into three different categories: Round cans, round cornered square cans and round cornered rectangular cans. Check No. 6784 on the coupon and mail it to secure details.

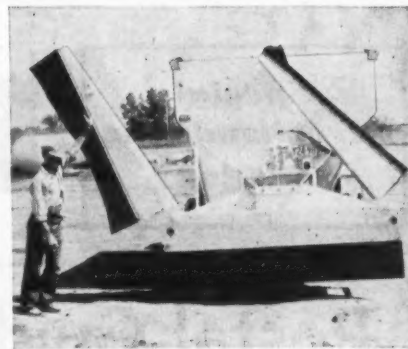
No. 6783—Compacting Process

A compacting process for fertilizer has been announced by the Allis-Chalmers Manufacturing Co. The system uses compacting, granulating and screening equipment to transform once discarded salt fines into effective fertilizer particles, applied in the field with A-C fertilizer attachments such as the one shown here. The mechanical compacting system is in production in several plants in potash, coke-oven ammonium sulfate, diammonium phosphate, sodium nitrite and carbon areas. Common to these producers of inorganic salts has been the unavoidable production of finely divided particles which break off or fly away before they are available for use as fertilizers. In the A-C process, these fines are fed into a com-

pacting mill where they are squeezed into a continuous sheet. Broken into chunks, the product is then granulated to marketable size in a roller mill. Screens assure removal of undersized and oversized particles. Check No. 6783 on the coupon and mail it to secure details.

No. 6782—Livestock Insecticide

A new livestock spray insecticide called Co-Ral is described in detail in a six-page folder prepared by the Chemagro Corp. The folder contains information and test data on the effectiveness of the new spray material against cattle grubs, screw-worms, hornflies, lice and ticks. The life cycle of cattle grubs and screw-worms are shown along with spray



raise and lower because of their lighter weight. The fiber glass hoods are designed to spread fertilizer evenly over a 23 to 24-ft. width of soil with one central distributor fan. They are hinged to swing up behind the truck box when not spreading fertilizer, and rubber bumpers reduce flopping when they are down. No chains are needed to hold up the hoods and they require no internal bracing. Check No. 6781 on the coupon and mail it to secure details.

No. 7043—Bulk Storage Brochure

A new descriptive brochure entitled "Economical Bulk Storage With Steel" has been prepared by the Sapulpa Tank Co. The two-color brochure has installation pictures and factual data pertaining to suggested tank sizes for various storage capacities. Check No. 7043 on the coupon and mail it to this publication.

No. 6776—Invert Emulsion Herbicide

A new weed and brush control chemical which limits the possibility of spray drift damage to crops has been placed on the market by the Dow Chemical Co. The compound is called "Inverton 245," a 2,4,5-T material formulated in an invert emulsion. The invert emulsion is a dispersion of oil particles through water—the reverse of a standard spray emulsion. This form gives the spray mixture a thick, creamy consistency. The spray is applied in large particles which do not break into a mist. This cuts the possibility of spray drift to a new low point, it is claimed. In addition, the product is based on a non-volatile free acid, cutting the possibility of damage to adjacent crops from herbicide vapors. Inverton 245 is best suited to industrial applications such as spraying along roadsides or power line right of ways. At the present time the product is not suited for use in farm fields. Check No. 6776 on the coupon and mail it to Croplife to secure details.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6780—Soil Fumigation Brochure

How soil fumigation can be used to rid soil of weed seeds, diseases and such soil pests as nematodes, is outlined in a new eight-page brochure published by the Stauffer Chemical Co. Profusely illustrated, the brochure describes the most effective methods of application which have been developed by the firm's field studies of the soil fumigant, "Vapam." Included are photographic descriptions of simple application techniques by rotary tiller, soil injection, overhead sprinkler irrigation, hose proportioner and basin flooding. The advantages of soil fumigation in nurseries, orchard sites, vegetable acreage and plant beds are discussed. Copies of the brochure are available without charge. Check No. 6780 on the coupon and mail it to Croplife and receive the brochure.

No. 6781—Fiber Glass Booms

New outer booms—or hoods—of fiber glass have been added as optional equipment on the Simonsen fertilizer spreader, it is announced by Simonsen Manufacturing Co. The new swing-out hoods are nearly 100 lb. lighter than those that have been standard on the fertilizer spreading unit, it is claimed. Fiber glass is not subject to corrosion by fertilizer material or rusting from the weather. Other advantages claimed for the fiber glass booms are that they require no painting and are easier to

No. 7052—Pneumatic Vibrator

Details on a patented one-piece bin and hopper pneumatic vibrator have been announced by the National Air Vibrator Co. The manufacturer states that the unit uses body assembly bolts, has no housing springs and the pistons are not grooved to collect scale. Check No. 7052 on the coupon and mail it to secure details.

No. 6778—"Vapam" Folders

New literature—consisting of color folders—has been prepared by the Stauffer Chemical Co. describing the use of its product, "Vapam" to control weeds, fungi, nematodes, symphyla and certain soil insects in vegetables, flowers, shrubs and on turf. Directions for use are also available. Check No. 6778 on the coupon and mail it to secure details.

No. 6775—Liquid Fertilizer Cooler

A new member of the Barnard & Leas Chemical Manufacturing Co.'s plants division production line is its new liquid fertilizer cooler. This field-tested unit is designed for plants to produce 8-24-0, 7-21-0, 11-22-0 and

Send me information on the items marked:

- | | |
|--|--|
| <input type="checkbox"/> No. 6771—Grain Protectant | <input type="checkbox"/> No. 6781—Fiber Glass Booms |
| <input type="checkbox"/> No. 6772—Soil Booklet | <input type="checkbox"/> No. 6782—Insecticide |
| <input type="checkbox"/> No. 6773—Data Sheet | <input type="checkbox"/> No. 6783—Compacting Process |
| <input type="checkbox"/> No. 6774—Fertilizer Body | <input type="checkbox"/> No. 6784—Product Cans |
| <input type="checkbox"/> No. 6775—Liquid Cooler | <input type="checkbox"/> No. 7043—Storage Brochure |
| <input type="checkbox"/> No. 6776—Herbicide | <input type="checkbox"/> No. 7046—Vibrators |
| <input type="checkbox"/> No. 6777—Peanut Movie | <input type="checkbox"/> No. 7050—Trigger Unit |
| <input type="checkbox"/> No. 6778—"Vapam" Folders | <input type="checkbox"/> No. 7051—Tramrail Tractor |
| <input type="checkbox"/> No. 6779—Source Book | <input type="checkbox"/> No. 7052—Pneumatic Vibrator |
| <input type="checkbox"/> No. 6780—Soil Fumigation | <input type="checkbox"/> No. 7081—Grain Treater |

(PLEASE PRINT OR TYPE)

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

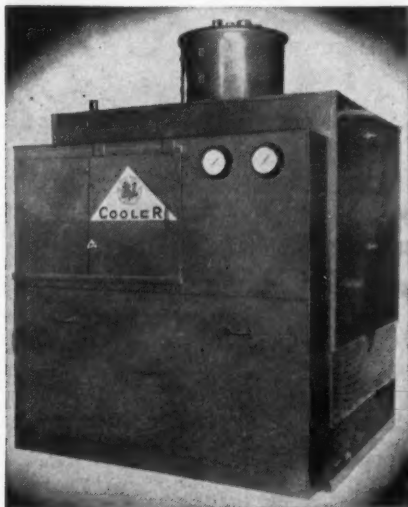
POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



other analyses of "hot" fluid fertilizers. This new patented cooler will maintain a reaction temperature, dependent on ambient conditions, of 220° F. at 160° F. (batch temperature) while using recycle hook-up. Flow rates as high as 200 gallons per minute have been attained. The cooler is factory assembled, enclosed in a weather-proof housing, pre-piped and ready for mounting on foundation. Check No. 6775 on the coupon and mail it to secure details.

No. 7050—Trigger Unit on Gross Bagger

A new trigger arrangement with automatic cut-off is said to permit faster bagging with a semi-automatic gross bagger by the Richardson Scale Co. For the company's G-17 gross bagger, the new trigger arrangement holds the gate open longer, and on most free-flowing materials the trigger can be set for the exact weight desired, a company spokesman said, eliminating all trimming. Check No. 7050 on the coupon and mail it to secure details.

No. 7051—Tramrail Tractor

A new motor-powered tractor for use on overhead tramrail materials handling systems has been developed by the Cleveland Tramrail Division of the Cleveland Crane & Engineering Co. The unit is driven by two 5-in. diameter steel rollers under spring pressure against the bottom of the track. The tractor will develop a drawbar pull of 300 lb. Check No. 7051 on the coupon and mail it to secure details.

No. 6771—Grain Protectant

A new protectant for corn, wheat and other grains in storage has been developed by the Miller Chemical & Fertilizer Corp. Malathion in a dust or spray is used in the product to protect grains against insects. The dust is formulated on a wheat flour base and the spray concentrate can be mixed with water. The liquid spray can also be used as a residual treatment in grain bins, on walls and other places. Check No. 6771 on the coupon and mail it to secure details.

No. 6774—Fertilizer Spreader Body

The Baughman Manufacturing Co.'s "K-5" lime and fertilizer spreader body now features a lubrication-impregnated drag chain discharge designed to resist corrosion and virtually eliminate "freezing" of the body's automatic discharge system. The firm employs a special process to saturate the heavy 40,000-lb. (total strength) test malleable block chain discharge with a permanent lubricating agent. Check No. 6774 on the coupon and mail it to Croplife to secure full details.

No. 6773—Technical Data Sheet

Henry Bower Chemical Manufacturing Co. has developed a new copolymer compound trademarked "Dy-Q-

Plex-1." Preliminary technical data is contained in a report available to agricultural chemical manufacturers and formulators. Secure the report by checking No. 6773 on the coupon and mailing it to Croplife.

No. 6779—Source Book

A source book designed to stimulate new independent research efforts by chemists in expanding the potential uses for calcium cyanamide has been published by the manufacturer's chemicals department, American Cyanamid Co. The product, aside from its original use in fertilizers, has application in insecticides and in other industries. Check No. 6779 on the coupon and mail it to secure details.

No. 6777—Peanut Movie

A 67-frame, sound color slide film, "More Profits from Peanuts," is

available from the United States Gypsum Co. Available for showings on request, the film may be used either with a 33½ r.p.m. record or script. It explains the uses and advantages of gypsum in growing peanuts. Secure details by checking No. 6777 on the coupon and mailing it to Croplife.

No. 6772—Soil Fumigant Booklet

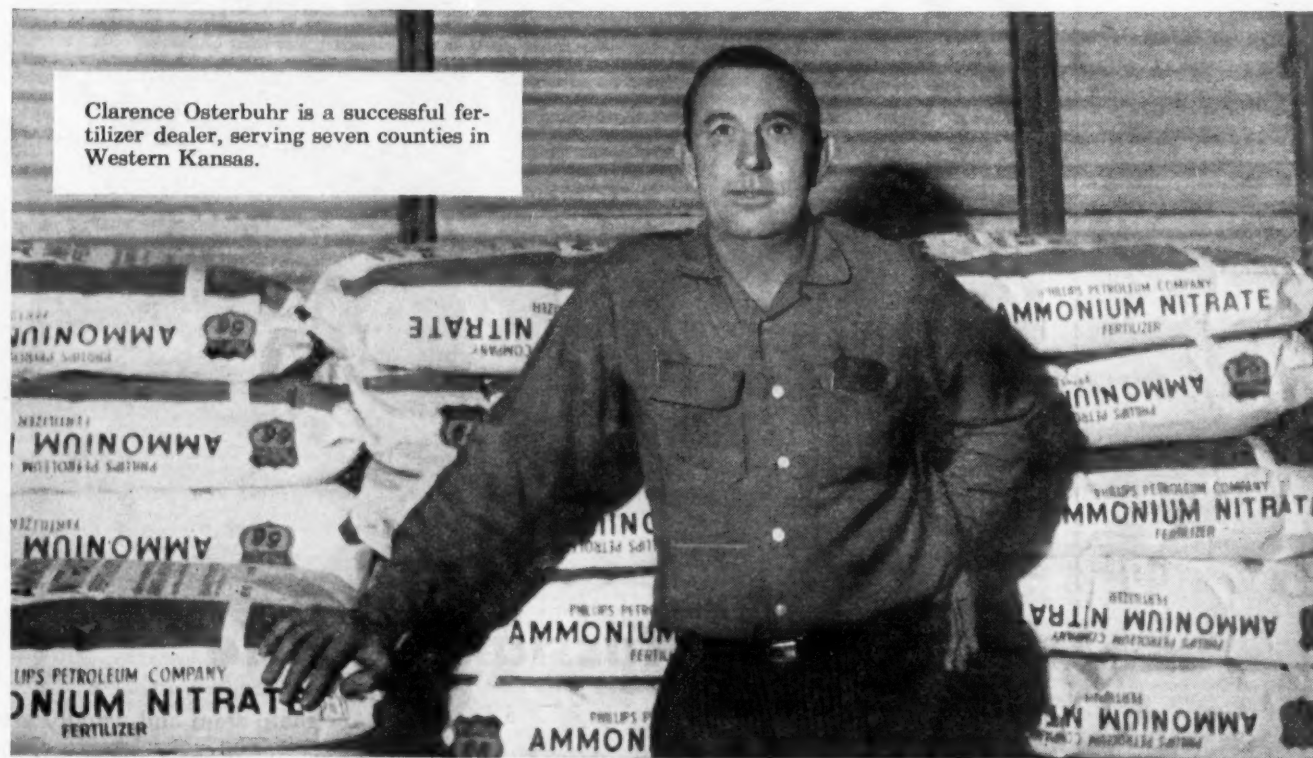
A new booklet entitled "Pestmaster Soil Fumigant-1 for Control of Imported Fire Ants and Cut-Ants" is available from the Michigan Chemical Corp. Directions are given for the use of the "Pestmaster" product for the control of imported fire ants. Details of the damage being caused to health, wild game and the over-all economy by the ants are explained. Check No. 6772 on the coupon and mail it to Croplife. Please print or type name and address.

No. 7081—Grain, Seed Treater

A new probe type unit operating on compressed air for treating of grain and seed in the bag on farms has been announced by the OK Manufacturing Co. Called the "In-the-Bag" treater, the unit is recommended for wheat, barley, oats, legumes and other seeds and grains which may be treated with dry chemicals. Check No. 7081 on the coupon and mail it to this publication for details.

JOINS CLEMSON STAFF

CLEMSON, S. C.—Dr. Richard C. Fox has recently been named assistant entomologist and assistant professor of entomology at Clemson College, according to Dr. M. D. Farrar, dean of the School of Agriculture. Dr. Fox will devote his time primarily to the field of forest insect research. He has already assumed his duties at Clemson.



Clarence Osterbuhr is a successful fertilizer dealer, serving seven counties in Western Kansas.

"My Customers Prefer Phillips 66 Ammonium Nitrate"—

Clarence Osterbuhr
ANAMO CO., INC., Garden City, Kansas



Proof of performance: Users of new Phillips 66 Ammonium Nitrate find it easier to handle . . . the result of an exclusive Phillips 66 process that gives hard, dry and uniformly round prills. Stores better, flows more freely, spreads more uniformly.

Mr. Osterbuhr says: "We serve an area where the farmers have a comparatively long experience with nitrogen fertilizer. That's why I'm particularly pleased to offer Phillips 66 Ammonium Nitrate to my customers. Its uniformity and its exceptional free flowing qualities make it a favorite with farm users who expect the best."

The outstanding performance of Phillips 66 Ammonium Nitrate is winning new customers for other dealers, too. Their farm customers like its ease of handling and uniform spreading, which helps give better yields.

Dealers appreciate the extras in the Phillips 66 program . . . consistent, convincing advertising of Phillips 66 Ammonium Nitrate in leading farm papers, personal service from Phillips 66 field men, and prompt deliveries which help dealers sell more, profit more. Order your supply of Phillips 66 Ammonium Nitrate today.



PHILLIPS PETROLEUM COMPANY

Phillips Chemical Company, a Subsidiary, Bartlesville, Oklahoma

Offices in:

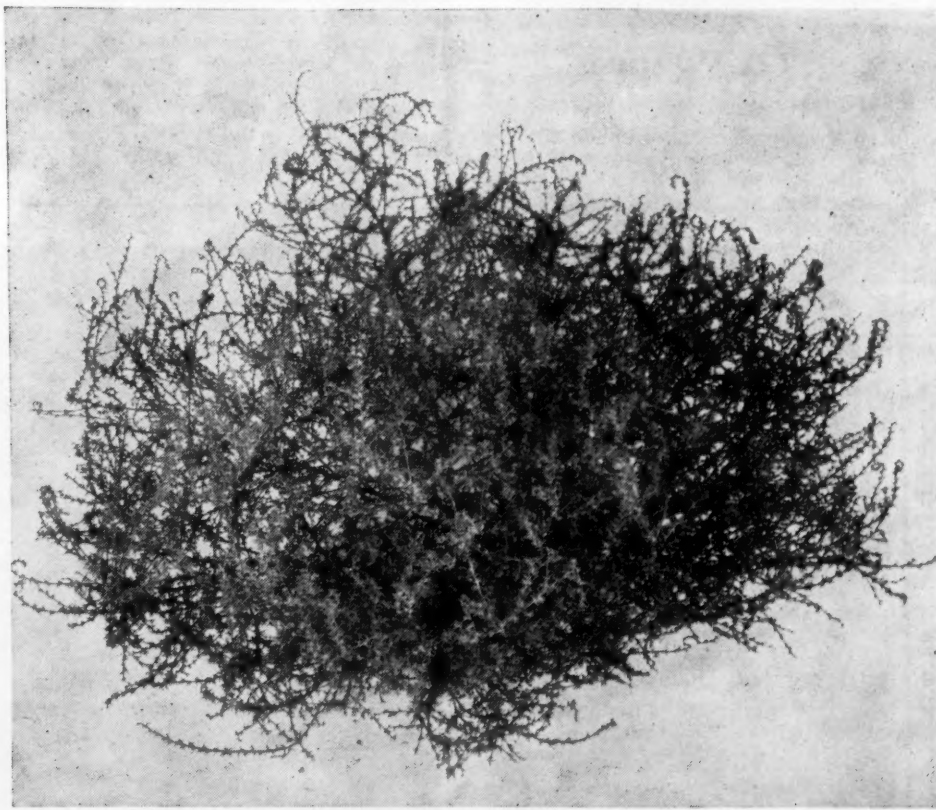
AMARILLO, TEX.—First Nat'l Bank Bldg.
ATLANTA, GA.—1428 West Peachtree Street, N.W.
BARTLESVILLE, OKLA.—Adams Bldg.
CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney St.
DES MOINES, IOWA.—6th Floor, Hubbell Bldg.

HOUSTON, TEX.—6910 Fannin Street
INDIANAPOLIS, IND.—3839 Meadows Drive
KANSAS CITY, MO.—201 E. Armour Blvd.
MINNEAPOLIS, MINN.—212 Sixth St. South
NEW YORK, N.Y.—80 Broadway
OMAHA, NEB.—3212 Dodge St.
PASADENA, CALIF.—317 North Lake Ave.

RALEIGH, N. C.—401 Oberlin Road
SALT LAKE CITY, UTAH—68 South Main
SPOKANE, WASH.—521 East Sprague
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Ullico Square
WICHITA, KAN.—501 KFH Building

WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Russian Thistle

General Appearance

Russian Thistle, otherwise known as "Russian cactus" and "tumbleweed," is found largely in the Great Plains states. In the fall of the year, the plants may be about 30 inches tall, with numerous branches arranged so that the general shape is somewhat spherical.

Growth of Thistle

Germination of the seed seems to occur normally early in spring, with seedlings appearing around April 30 (in North Dakota). Under favorable conditions, germination may continue later in the season, with seedlings having appeared as late as the middle of June. Early leaves become quite long, but the later ones are somewhat shorter. By the first of June, the normal plants in the open are about 4 in. tall and the lowest branches have just begun to develop. In later growth and maturity, the lower branches spread out nearly horizontally, or are bent somewhat downward to rest on the ground. Terminal portions rise as much as is permitted by the mass of upper branches. The lower secondary branches often become nearly as large as

the main stem and usually are somewhat longer. The very lowest branches, however, may be dwarfed, presumably due to shading by the upper branches.

Propagation

The Russian thistle is an annual plant, reproducing by seeds on both cultivated land and waste places, chiefly in dry regions of the U.S. and Canada. Although early leaves of the plant are succulent, later ones are stiff and end in spines. Late in the season, the whole plant becomes hard and woody, breaks loose from the soil, and is blown about as a "tumbleweed." This action scatters its seeds over a broad area.

Losses from Thistle

The chief economic loss charged to these plants lies in their use of moisture which could better be utilized in producing crops. The thistle also causes nuisance damage to fence rows and to fences themselves by piling up against them. The most effective manner of control, according to experiment stations in the states where the weed occurs, is through cultural means.

*Illustration of Russian Thistle through courtesy of U.S. Department of Agriculture, Beltsville, Md.

Stock Management In Retail Stores

By Irving Goldenthal, Management Consultant and former Lecturer,
School of Retailing, New York University, New York, N.Y.

A large stock does not necessarily guarantee that you have a complete stock. A recent New York City survey of women's dress departments in department stores revealed that in the stores carrying the largest quantities of dresses, many shoppers could not find the size that would fit them, in the style they wanted and in a color they liked. Conversely, however, in several stores with smaller stocks they were fitted and satisfied readily.

This situation illustrates the fact that large inventories often contain masses of old and slow-moving goods, which are not in demand. These items clutter the stock and tie up capital. Small business owners, particularly, should not lose sight of the fact that capital is a commodity, and costs money like any other commodity. Whether you borrow from a bank or use your own capital, an investment of \$100,000 in goods costs \$5,000 to \$6,000 a year in interest. Consequently, if you can reduce your inventory from \$100,000 to \$60,000, without losing sales, you will reduce your cost of doing business by \$2,000 to \$2,400.

HOW LARGE A STOCK?: Your store's inventory should, of course, be large enough to serve your customers. That involves having on hand at the right time, the goods they want, at the prices they are willing to pay.

A haberdashery store, for instance, should have in stock the sizes, styles, and price-lines in shirts that the men in the community are accustomed to wearing. When customers hopefully come into a shop in search of shirts, it is the beginning of the end to tell them that stocks have run out of this size, or that style, or a particular price-line. But this does not mean that a dozen brands of shirts should be carried when one or two brands would suffice. Neither is it necessary to offer for sale men's socks at say 49¢, 59¢, 79¢, \$1, and \$1.25, when, very likely, three instead of five price-lines would be ample.

The essentials of keeping a stock small, but ample, and turning over satisfactorily are:

- (1) Carry a few brands, styles, and price-lines which are in steady demand;
- (2) Carry these brands, styles, and price-lines complete;
- (3) Buy only items which you know will sell in your store, and beware of putting too much emphasis on what goes well in someone else's store;
- (4) Do not buy all the unusual lines that some vendors would like to push on you;
- (5) Do not be hoodwinked into purchasing excessive quantities by the lure of extra discounts;
- (6) Fill in only the items that are needed rather than placing orders "across the board," which leads to duplication of similar items already in stock.

DEADWOOD IN THE INVENTORY: Even if you were the most skillful buyer in the world, you would still accumulate a certain number of items which simply would not sell. Such goods are deadwood and should be disposed of without delay. There is, to be sure, an understandable reluctance on the part of merchants to take markdown losses. But slow sellers will choke your inventory just as weeds, unchecked, will choke and kill a garden.

"Let's wait," the storekeeper says hopefully, "someone will buy these goods." However, while the retailer is waiting for that special customer to come along, the merchandise is not improving with age. Also capital is tied up; fresh goods cannot be bought; and customers are getting to

know the old stock all too well. Hence, the store is losing sales by not having new, more attractive merchandise.

It has been said that the giant department stores can sell ear-muffs in August simply by placing a table full of them on the main floor. Not so the small store. Here the same customers come in frequently and become almost as familiar with the stock as the owner himself. Good sense dictates that slow-moving merchandise must be acted upon promptly.

Several things may be done: run a special advertisement; feature the slow-movers on counters; or offer the items at a reduced price. It is a proven rule that you won't have to take so large a markdown if you face facts and reduce the price of unpopular goods promptly. The longer you

hold on to slow-sellers, the heavier the markdowns you will eventually have to take.

THE S.M.M. SHEET: One simple device which helps considerably to control and eliminate deadwood in inventory is the S.M.M. (slow-moving merchandise) sheet. When sales of certain items show signs of slowing down, these items should be listed on this sheet.

It is a form having 10 or 12 columns in which should be noted periodically the number of items remaining at each stock-taking period. Stock-taking should be done once a week or once a month, depending on the nature of the merchandise. Once a month is enough for staples. Once a week would be better for special holiday or highly seasonal merchandise.

The function of the S.M.M. Sheet is to bring old goods automatically and persistently to the attention of the storekeeper and to stir him up to do something about them. He can then review the situation again, pull the slow-sellers from under the counter where they probably are resting quietly, give his salespeople a pep talk, or take some other appropriate action. The important point is that with such a system, the merchant

does not run the risk of overlooking or forgetting the slow-selling portion of his inventory.

To be sure, many small store owners object to installing any forms and systems which may mean extra trouble and cost to maintain. That feeling is only natural. However, the S.M.M. Sheet can be kept up by the store owner himself and will yield rich rewards for the time spent.

PLANNING STOCKS AND SALES: No matter how small your business, sales and stocks should be planned by months for at least six months ahead. First, the correct relationship between the B.O.M. (beginning of month) stock, the E.O.M. (end of month) stock, and the expected sales for the month should be computed. Then the appropriate purchases for the month can be readily figured.

● **Example:** Suppose you run a small furniture store. For the month of September you anticipate sales of, say, \$4,000. From past experience you judge that you will have to take some \$300 in markdowns. You figure that for a rounded line you should have \$7,000 worth of stock at retail on August 31, and \$6,000 worth on hand on September 30. The question then is: How much in the way of pur-

Books on Pesticides

WEEDS—Second Edition (1955)

W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery \$10.00

CHEMICAL BUSINESS HANDBOOK

Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication \$17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)

Leonard M. Peairs and Ralph H. Davidson

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Dr. E. R. de Ong

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chases do you allow to come into your stock during September

Explanation:

B.O.M. stock\$7,000
Planned sales\$4,000
Expected markdowns.. 300 4,300
E.O.M. stock without
purchases\$2,700
To have the desired E.O.M. stock of \$6,000, the purchases for the month should be \$6,000 at retail less \$2,700 or \$3,300.

STOCKS/SALES RATIOS: Another stock management question is: What should be the ratio of stock to sales each month? To answer this question intelligently you should consider several factors. Among them are the size of your store, the nature of the goods carried, whether they are seasonal, staple, or fashion items, and the stock-turn rate which is usually obtained by stores similar to yours. (Trade associations can often furnish information on average stock turns and other composite merchandising statistics. Useful figures are also available in the Business Service Bulletins issued by the Office of Distribution, U.S. Department of Commerce, Washington 25, D.C.)

Now suppose that the customary stock turn for stores of your type and size is four times a year. Divided by 12 months this would represent a stock turn of $\frac{1}{3}$ each month. The ratio of stock to sales is, therefore, \$1 of sales for \$3 worth of stock. Putting it another way, the stock for the month should be three times the planned or expected sales for the month.

● **Example:** If planned sales for the month are \$2,500 and stock turn for the month $\frac{1}{3}$, the B.O.M. stock should consequently be \$7,500 at retail.

Note: The stock turn rate, of course, may not be the same for each month. In December, for example, stock turn should ordinarily be higher than in January. You should allow for this effect in the stock-sales relationship for these months and plan on a change in your B.O.M. stock.

CONTROL OF INDIVIDUAL LINES: Most merchants find it advisable to plan ahead, not only for the store as a whole, but also for individual lines of merchandise. The smaller the store, it should be pointed out, the fewer should be the classifications and, hence, the simpler the job.

For instance, if you operate an infants' shop, to assure good stock management, you should keep separate records for infants' furniture, dresses, coats, and accessories. A more detailed breakdown may be necessary as the business grows.

Dollar control of each classification may suffice for certain types of establishment. Others, however, will very likely find it profitable to institute some simple form of unit control. By means of unit control merchants are in a position to know what is selling by style, size, color, price-line, and vendor from whom the item was purchased.

Many small business owners tend to fall into the snare of substituting guesswork for facts. Just because their firms are small, they often have a mistaken impression

that they know all that is going on. What they do know is important, undoubtedly, but there is no substitute for simple but adequate records, which will reveal all the information required for proper stock management.

AN ADEQUATE MARGIN: If a man were planning a trip from New York to Los Angeles, but took along only enough money to get him as far as Chicago, it would be an understatement to say that his chances of getting to the West Coast were slim. Likewise, a merchant's chances of arriving at an over-all profit are slim if he does not obtain an adequate margin on his stock. That markup must be sufficient to cover (1) operating expenses, (2) markdowns and stock shortages, and (3) a reasonable profit before taxes. It is prudent, therefore, to estimate the magnitude of these three factors and, based on that estimate, to set some sort of average markup as a goal to shoot for.

● **Example:** Based on your operating results in recent years, estimated expenses for next year are 28 percent of net sales; markdowns and shortages are put at 5 percent; and profits before taxes are figured for 5 percent also. What initial markup percentage on purchases will be required?

Explanation: Add the three percentages and you get 38 percent. This figure, however, is not the markup that will be required. The reason is that the percentages given are based on net sales, but the initial markup was based on the original retail value of the goods sold—before any markdowns and shortages developed. To build up the sales to their original value add to sales of 100 percent, markdowns and shortages of 5 percent giving a total of 105 percent. Now divide 38 percent by 105 percent and you arrive at the figure 36.2 percent. This is the average initial markup percentage required.

FIGURING MARKUP ON COST VS. RETAIL: It is worthwhile remembering that markups are tricky things. Businessmen often become confused when they think of markup percentages. The following situation is common: A buyer purchases an item from a manufacturer for \$5 and plans to retail it at \$8. What is the markup percentage? The manufacturer will maintain firmly that the markup is 60 percent, while the store buyer will insist just as strongly that the markup is only 37½ percent.

Who is actually right? The answer is that they are both right. The vendor, on the one hand, is prone to take as a base the price at which he sells his product. Thus, a \$3 markup on a \$5 cost is undoubtedly 60 percent. The retailer, on the other hand, may take his retail price as the base on which he computes markup. Hence a \$3 markup on an \$8 retail price would be 37½ percent.

Figuring markup on the basis of retail prices is common in many large department stores and chains. It emphasizes the selling price of goods and bases markups, expenses, profits,

(Turn to STOCK MANAGEMENT, page 16)

SUMMARY

Look at the small retail stores in your community and, chances are, you'll see several which always seem to have just the right merchandise at just the right prices. They know their stock, too. Such firms have real competitive strength. This fortunate situation, however, does not develop by accident. It requires intelligent effort in managing inventories. While it does take hard work, small stores, as well as big ones, can have effective stock management.

Most small store owners have only limited amounts of capital. As a result, they need to keep what funds they have "at work" in the most productive way. In this connection, a prime consideration is the portion of available money invested in stock-on-hand. To earn a profit, your stock must turn over. Goods must be sold out and be replenished as often as possible—consistent, of course, with keeping at all times a reasonably complete assortment. "Profits are made from turnovers, not leftovers," as one retailer put it. The accompanying article was prepared by the Small Business Administration, Washington.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The new farm bill, a victory for Ezra Taft Benson, secretary of agriculture, called for a new look at fertilizer and pesticide markets as a significant shift away from the parity concept loomed.

Charles M. Miller, former Monsanto Chemical Co. employee, was enjoined by the U.S. District Court in Salt Lake City from revealing any trade secrets and other information and data belonging to Monsanto. Now employed by Central Farmers Fertilizer Co., Mr. Miller had been accused of revealing trade secrets to his former employers.

A sum of \$280,000 a year was granted by Congress for a thorough study on the effect of pesticide spraying on wildlife.

Some 300 persons attended the Southwestern fertilizer grade hearing in Galveston, Texas in July.

The Midwest Regional Advisory Committee of the National Plant Food Institute approved plans for many-sided projects including grants-in-aid, scholarships, educational news services, and cooperation with bankers.

A public relations panel discussion and an imposing list of speakers are on the program for the 25th anniversary meeting of the National Agricultural Chemicals Assn. scheduled to be held at Augusta, Ga., Oct. 29-31. The association announced the tentative program plans late in July.

Paraguay exempted fertilizers from payment of import duties. Chemicals mentioned specifically in its law included commercial potash, caustic soda, sodium nitrate, sodium sulfate and sodium carbonate.

R. P. Thomas, International Minerals & Chemical Corp., Chicago, was made chairman of the National Plant Food Institute's Midwest Research and Education committee.

Kenneth D. Jacob, chief of the Fertilizer Investigations Research Branch, Soil and Water Conservation Research Division, USDA, was selected to receive the 1958 Harvey W. Wiley Award of the Association of Official Agricultural Chemists.

That food labels need carry no information about whether or not pesticides have been applied to the crop before harvest was decided by the House Interstate Commerce Committee. The ruling amended the definition of what constitutes chemical preservatives as referred to in the Federal Food, Drug and Cosmetic Act. Pesticides are not preservatives, it was brought out.

A new firm in Ecuador for the processing of pyrethrum flowers was announced. Known as Inexa, Industria Extractora C.A., the firm will be under the managership of Dr. Luis Werner Levy.

Dr. O. B. Jesness, agricultural economist, writes that the partnership between farmers and bankers, increasing over the years, is now an important factor in the purchases of ample amounts of fertilizer materials and other farm needs.

Attorneys for the plaintiffs in New York's DDT trial announced that they would appeal the decision of Judge Walter Bruchhausen who had ruled that the 14 Long Island residents who tried to stop the government's pesticide spray programs had no proof for their claims against DDT.

The U.S. Department of Agriculture announced that it would release 50 million sterilized screwworm flies, half of them males, in the southeastern states to reduce the numbers of screwworm pests in the area. The operation was conducted jointly by USDA and the states involved. An area of some 50,000 to 75,000 square miles is involved.

An article pointing out the merits of selling fertilizers the year around was presented in Croplife by G. A. Wakefield, Olin Mathieson Chemical Corp. He told his readers that both efficiency and profits will be bolstered by successfully merchandising fertilizers in the off-season.

International Minerals and Chemical Corp. announced that its grant-in-aid program for research in plant nutrition and soil fertility totaled \$125,000 for the 1957-58 period. Some 25 colleges were named as recipients of the grant.

Federal funds in the amount of \$1 million were made available to help stop the outbreak of migratory grasshoppers in Colorado, Kansas, Oklahoma, New Mexico and Texas. This represents about a third of the expected cost of spraying some 5 million acres in 46 counties of these five states. About 80% of the total acres comprise rangeland.

Insect activity all over the U.S. stepped up early in July, with corn borer, grasshoppers, armyworm and alfalfa aphids being among the most prominent pests mentioned in reports.

The 3% excise tax on freight movements was ended by Congress, effective Aug. 1, 1958. The move was hailed by the fertilizer industry as a boon to its tight profit margin situation.

Spencer Chemical Co. closed its Vicksburg, Miss., anhydrous ammonia plant on June 21 for the period of approximately a month, to adjust its inventories. The company continues to make deliveries from the plant as usual.

Edward Block was named to head the chemical division of Olin Mathieson Chemical Corp. He was formerly vice president in charge of the company's agricultural and phosphate chemicals divisions.

Fertilizer consumption in the U.S. and possessions totaled 22.7 million tons in the fiscal year ended June 30, 1957, the U.S. Department of Agriculture reported. This was an increase of 515,041 tons, or 1.7%, over the use the previous fiscal year.

Congress was preparing legislation to provide funds for research on the effects of pesticides on wildlife. Government officials hailed the move as being one of the most constructive to come about in years, in bridging the gap between the USDA and the Department of Interior caused by misunderstanding in seeking ways to gain common ends.



FARM SERVICE DATA

Extension Station Reports

Fertilization results published by the Mississippi Agricultural Experiment Station state that an experiment with differing nitrogen and stand rates for corn have been conducted for more than 10 years.

In 1957, which was the eleventh year, the field was planted to corn without fertilizer to study the cumulative effects of past treatments on soil properties.

When fertilizers were applied, as a 10-year average, yields were increased from 31.6 bu. per acre with no nitrogen and 4,000 plants to 98.5 bu. with 120 lb. of nitrogen and 12,000 plants per acre. Crop residues for replenishment of the soil organic matter were increased by over two tons per acre each year.

As a cumulative advantage of the better cropping system over the 10-year period, corn yields were higher by 16 bu. per acre in the eleventh year when no fertilizer was applied. There was a small, though definite, improvement in physical condition of the soil at the 3 to 6-in. depth. No measurable differences in soil nitrogen or organic matter were found. Nitrogen applications increased the need of the soil for lime.

Thus the combination of 120 lb. of nitrogen and 12,000 plants per acre proved a very profitable treatment for corn, and in the year after treatments were discontinued some cumulative improvement in soil properties was measured. The field has a slope of only about 2% and erosion is not a problem. The only disadvantage of these high nitrogen applications was an increase in soil acidity, and this can be corrected periodically by liming.

Fertilizer trials for cotton production in the hill section of Mississippi have been conducted at most of the branch experiment stations and on farmer's fields for the past four years in an expanded research program.

Fertilizer requirements, particularly for nitrogen, have been found to be related to the amount of cotton that could be produced with adequate fertilization.

Where the yield with adequate fertilization did not exceed 1,800 lb. of seed cotton an acre the odds were about 9:1 that the nitrogen requirement was not in excess of 72 lb. an acre. Where the yield was not in excess of 1,200 lb. the odds were about 1:1 that the nitrogen requirement did not exceed 48 lb.

However, where yield were in excess of 1,800 lb. but not greater than 2,800 the odds were about 4:1 that the nitrogen requirement was at least 72 lb. an acre but not more than 144.

Only deep, moderately-well to well-drained terrace (second-bottom) soils and deep, moderately-well to well-drained, level to gently sloping upland soils have the capacity to produce in excess of 1,800 lb. of seed cotton an acre without irrigation even with good insect control. Phosphate (P_2O_5) and potash (K_2O) requirements were variable but seldom exceeded 72 lb. an acre and in more than 50% of the trials no more than 48 lb. of each was required.

Minor elements (boron, copper, zinc, manganese, iron, and molybdenum) failed to give significant increases in yields in practically all instances indicating that they are not needed generally for cotton in the hill section of Mississippi.

Cotton fiber strength and length were increased by the irrigation in 10 of 12 varieties tested. This variety difference in response to irrigation was significant at the 1% level. In

all cases irrigation increased the oil content and decreased the protein content of the seed.

★

A study to determine the potassium-supplying power of a large number of Mississippi soils has been completed by the Mississippi Agricultural Extension Service. It involved by cropping the soils to sunflower under greenhouse conditions to evaluate chemical methods for predicting the potassium status of these soils.

Soils taken from the hill section of Mississippi were generally low in potassium-supplying power, whereas those from the Delta area were usually medium to high.

Exchangeable potassium was the most reliable single-measurement for predicting the potassium status of a soil for the next crop. However, if predictions are to be made covering perhaps five or more years then an appropriate chemical measure of the potassium-supplying power of the soil should be quite helpful in improving prediction accuracy, Mississippi extension officials say.

★

Hay making losses can be cut 50% by improved harvesting methods, reports D. M. Byg, Ohio State University extension agricultural engineer.

Such methods, says Mr. Byg, include raking and moving the hay into storage at about 35% moisture

CROPLIFE, Aug. 11, 1958—15

and then curing for safe storage with a crop drier.

Ohio studies indicate that with common field curing, 23% of the hay crop is lost in harvesting, due mainly to leaf shattering. Another 7% is lost due to fermentation in storage.

And when hay is damaged by rain, the losses can run from 37% to 100%, Mr. Byg reports.

SEEKS NEW REPELLENTS

MEMPHIS, TENN.—The research department of American Smelting and Refining Co. has recently established a grant-in-aid for the purpose of screening materials for their effectiveness as livestock insect repellents. Harrold B. Jones of the company's agricultural research department states that candidate materials are welcomed, and that information is available from him at 2772 Natchez Lane, Memphis.

DEF[®]

GIVES FASTER, BETTER, COTTON DEFOLIATION

Revolutionary action gives fast leaf drop

... cleaner harvest ... higher crop income

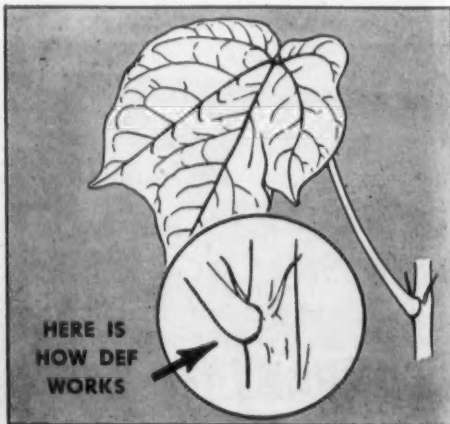
The revolutionary action of DEF defoliant assures a cleaner, higher value cotton crop every time. DEF does not merely dry up leaves, it makes them fall off green, stems and all . . . produces better than 90% defoliation in as little as 5 to 7 days. This *faster, more complete defoliation* significantly increases the efficiency of mechanical harvesting and results in less trash and lint stain . . . a cleaner, better quality, higher value harvest!

Unlike conventional defoliants, DEF works whether or not dew is present on the plant. DEF is effective on mature, immature and terminal growth leaves. It even defoliates plants still in vegetative growth at the ends of rows.

Cotton defoliation with DEF provides the fastest, most dependable and complete defoliation available—thus it pays off in a cleaner, higher quality, more profitable cotton harvest.

TYPICAL DEFOLIATION RESULTS WITH DEF

| Location | Amount DEF per acre | Days after treatment | Percent defoliation |
|----------------|---------------------|----------------------|---------------------|
| Louisiana | 3 pints | 7 days | 90% |
| Mississippi | 2 pints | 5 days | 95% |
| South Carolina | 2 pints | 7 days | 90% |
| Texas | 2 pints | 5 days | 92% |



DEF stimulates the formation of an abscission layer where the leaf stem joins the stalk, makes entire leaf and stem fall free of stalk.

DEF A PRODUCT OF **CHEMAGRO**

"Chemicals for Agriculture—Exclusively!"



Doing Business With

Oscar & Pat



By AL P. NELSON
Croplife Special Writer

The midsummer day was sweltering and every screened window and door in the Schoenfeld & McGillicuddy store was open to inveigle a vagrant wind to take a cooling short-cut through the business establishment. But even so, Oscar and Tillie Mason, the ulcerish inclined bookkeeper, were spending much time wiping perspiration from their faces.

For two years, Pat had been urging an air conditioning system for the store, because Iowa summers are really hot and dry, but Oscar never would permit it. In fact, at the mention of air conditioning, Oscar would almost go through the roof. Immediately he would begin talk of hard times.

"Ach, this book I got on the recessions since 1883, says we may have another one in 1960," he would say. "We must be ready for it. Air conditioning—ach, that we can get along without."

"Isn't there a book listing all the prosperity times in our history?" Pat once asked Oscar. "We've had some wonderful times. If we hadn't this country couldn't keep on advancing every decade, with better living conditions for everyone."

"Talk is cheap," Oscar said. "What counts is how much money does a person have and got ready for the rainy day. How much money does the business have in the bank just in case, instead of on the shelves in too much merchandise, or stacked in the warehouse."

"But, Oscar, we can't sell stuff we haven't got. If customers ask for something and we haven't got it, they'll spend their money someplace else."

"Let us sell what we got," Oscar grunted, his nose buried in bills looking for discount dates. "We don't have to stock every little thing customers want. The more you put on the shelves the more they want. And, ach, I saw a lady in here the other day who couldn't make up her mind what dust to use on her squash. We had too many! She got nervous and said she had to go home and ask her husband. Ach, and I have not seen her back yet. Maybe he's nervous, too, and can't make up his mind."

Someone once said that money makes the world go around, and with this Oscar wholeheartedly agreed. All he saw was cash; merchandise and its values came second. He took it for granted that most merchandise was alike. It wasn't what a customer wanted, but could he pay for it—in cash.

On this hot summer day, a pudgy, straw-hatted farmer named Bill Gerbensky came waddling into the salesroom. He carried a copy of the local weekly newspaper, and it was folded to a certain page.

"Well, Oscar," he said jocularly, "what's the magic number?"

"Magic number?" echoed Oscar. "Ach, what are you talking about?"

"Don't tell me you don't even read your own ads? Here, take a look." He shoved the paper under Oscar's nose. Oscar looked at a 3-column, 15-in. deep ad and the copy said, "The Magic Number! Ask us about it. Schoenfeld & McGillicuddy."

Oscar frowned. "What crazy schtuff is this? Ach, it must be that Pat that did this. And look at the space he wastes. So much white space. Why he could fill it up with lots more words and mats. We want our money's worth. Or he could take

a small ad. The magic number. Phooey."

"Oh, I don't know about those ads jammed with copy," said the farmer, taking back the paper. "If they look too crowded I never read them. Now something like this has got me thinking. What the hell does Pat mean by the magic number? I wanna know."

At this moment, tall, blue-eyed Pat McGillicuddy came into the salesroom. Under his arm he carried a stack of cardboard signs. It was evident he had just come from the print shop.

"Hey, Pat," called Gerbensky, "what's the magic number? I'll bet it means you are giving us an 8% discount on fertilizer we order for fall plowdown."

Oscar almost choked at this insinuation and pressed so hard on his pencil, he broke the lead, which further exasperated him.

"I wish we could give all you farmers an 8% discount," Pat said, "but if we did we'd go plumb outa business, wouldn't we, Oscar?"

Oscar just grunted like a stuck porker.

"But we are going to offer a 3% cash discount on fall fertilizer," Pat said.

"W-well," replied Gerbensky, "that ain't bad. And if I decide to buy I kin pay cash. I've raised 250 hogs this summer that should be ready for market soon, and I've got 90 beef cattle."

"You certainly have done well, Bill," Pat said, "and we are glad you are buying your feed as well as your fertilizer from us."

"But what's the magic number?" persisted Gerbensky.

Pat smiled and shoved a chair toward Gerbensky. "The magic number is \$15. That's how much investment per acre in fertilizer it takes to produce big corn crops in this area. I've checked with many raisers and worked out this figure."

"I'll bet I spend that much," boasted Gerbensky.

Pat shook his head. "No, only 12 farmers in our area use that much per acre. Our average is \$9.50, believe it or not. We still have a long way to go."

"Lemme see that list of twelve," Gerbensky said.

Pat handed him the list, and Gerbensky ran his glance over the names quickly.

"Huh," he said, "I guess if those fellers can do it, I can, too. But it's

a big jump for me, Pat—an extra \$5.50 per acre."

Pat smiled. "Well, if you remember you didn't take ALL the recommendations from the state soil test report. You cut down a little. But if you want more corn per acre, you gotta go up."

"But I hate to spend all that money for fertilizer now and not get the benefit of it until next July and August."

Again Pat smiled. "Bill, when you fertilize up to \$15 per acre now, you are storing the fertilizer in the soil, and that's a darn good place to store it. It means it'll work for you from the first day in spring when the soil warms up. And it'll be cured properly. The extra bushels of corn you get will pay interest charges and more on the money you invest."

"Okay," said Gerbensky. "Lemme have a day or two to check up, and then I'll order more for plowdown."

After Gerbensky left Pat began to whistle, then took his signs and tacked them up on islands, wall locations and even in the warehouse. Copy on them was the same as in the ad in the newspaper: "The Magic Number. Ask us about it."

Oscar got up and walked around the store, back straight as a ramrod. He read the copy on the signs, said "Urumpf!" several times. Then he went back to his desk, took a long list of delinquent accounts and placed the list on Pat's desk. With a very sharp pencil, he wrote on the list, "Use a little magic on this, too!"

Illinois Agronomy Day Set for September

URBANA, ILL.—The latest results of research in crops and soils will be displayed at the second annual agronomy day on the University of Illinois Agronomy Farm on Sept. 11. R. W. Jugenheimer and J. W. Pendleton, agronomists and chairmen of the event, extended an open invitation this week to all farmers and others who are interested. Tours will begin at 9:30 a.m. central daylight time.

Tour stops will include tests with different types of nitrogen fertilizers, corn root growth studies, rotations and soil treatments, alfalfa varieties, minimum tillage, grain sorghums and broomcorn.

More than 1,200 persons attended the first Agronomy Day, held in June, 1957. This year the date has been changed to September so that visitors can get a better view of corn and soybean research at this time of year.

STOCK MANAGEMENT

(Continued from page 14)

and other operating statistics on the retail figure. The alternative approach, of course, is to base markup on the cost of the goods to the merchant.

INVENTORY VALUATION-COST AND RETAIL METHODS: Using the so-called "cost method" of inventory valuation, goods are tallied at what the merchant paid for them. When appropriate the depreciation is estimated and subtracted from the purchase figure. Applicable transportation costs are added because they increase the cost. For example, the present value of a closing inventory may be calculated in this way:

| | |
|--------------------------|---------|
| Inventory billings | \$5,000 |
| plus Transportation ... | 50 |
| | \$5,050 |
| less Depreciation | 300 |
| Present value | \$4,750 |

Using the so-called "retail method" of inventory valuation, the combined retail value of the stock is built up from all the individual retail prices. Then, the initial markup obtained on all goods sold during the reporting period is applied to that total retail figure to yield the present value. For example, if the initial markup is 40 percent and the retail value of stock is \$5,000, you proceed as follows:

| | |
|-----------------------------------|------|
| Retail price | 100% |
| Less initial markup | 40 |
| Cost percentage | 60% |
| Retail value of Stock (\$5,000) × | |
| Cost percentage (60%) = Pres- | |
| ent value (\$3,000). | |

This, of course, is a simplified illustration of what in practice can be a fairly involved technique. Nevertheless, it serves to highlight the distinction between figuring markup from the basis of the retail price, and the "retail method of inventory."

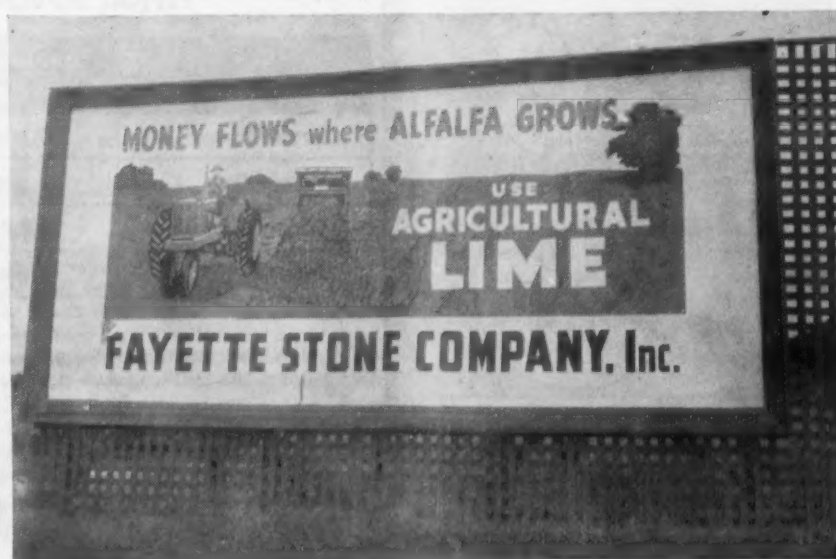
From the viewpoint of sound stock management, however, the goods you carry should be listed at cost or market whichever is lower. When this is done, the cost of goods sold is larger than would otherwise be the case, and net profits are proportionately smaller. This is desirable conservation. It is always questionable whether the goods you bought yesterday for \$250 are really worth more if today's price is \$300. But when wholesale prices are level or dropping off, chances are that your stock on hand is worth less than what you paid for it.

Iowa Dealer Ties in Lime, Fertilizer Sales

Many soils need lime, but it is also true, especially in Iowa and nearby states, that many farmers who buy lime do not buy commercial fertilizer. The reason for this, many Iowa dealers say, is that so many beef cattle are raised in Iowa, also hogs, that some farmers have been trying to get along without commercial fertilizer and use livestock manure.

Some dealers say that only 30% of Iowa farms use commercial fertilizer. Thus the potential market for commercial fertilizer is large. One way to initiate the farmer into use of commercial fertilizer is to have him buy and apply lime in accordance with soil test recommendations. Get the farmer started liming and you'll have an easier time selling him on commercial fertilizer, many observers say.

Billboard advertising such as is done by Fayette Stone Co., Inc., Fayette, Iowa, encourages the greater use of lime where needed and ties in with the sale of fertilizer. If fertilizer dealers stress "liming and fertilizing" together, they'll have a better sales approach in some areas than if they stress "fertilizing" by itself, one dealer states.



LIME SIGN—This highway sign does a selling job for the Fayette (Iowa) Stone Co., Inc. Lime and fertilizer sales tie in well, company officials explain.



Gerald Pope

BEAIRD PROMOTION — Gerald Pope, assistant general sales manager since May, 1957, has advanced to general manager of sales of the J. B. Beaird Co., Inc., John L. Tullis, executive vice president, has announced. Mr. Pope succeeds Melvin A. Finuf, who has moved up to the staff of the executive vice president as marketing assistant. Mr. Pope became associated with Beaird 11 years ago as a sales engineer in the Shreveport office.

U.S. Restrictions Lifted on Proposed Potash Mine Site

MOAB, UTAH — Delhi-Taylor Oil Corp. moved a step closer to development of its potash holdings near this southeast Utah town late in July when the solicitor's office of the Department of Interior lifted a 50-year federal power reserve restriction.

The company's proposed mill and potash bed sites are in an area previously withdrawn for a future power development on the Colorado River. Lifting of the restriction was necessary to clear the legal way for the new development and insure that the new properties would not be taken over by the federal government at some future time in connection with power development.

Delhi-Taylor, with headquarters in Dallas, Texas, has 17,700 acres in potash leases and permits at Seven Mile Canyon near Moab and some 25,000 acres in leases and permits at Cane Creek and adjoining Shafer Dome.

The Cane Creek area is nine miles south of the Seven Mile area on the Colorado River.

Delhi-Taylor plans to spend some \$25 million to establish potash mines and a plant in the two areas. Construction of a 38-mile railroad spur to the proposed loading site in the Big Flat area also is planned. The plant will be located somewhere between the two potash beds.

Either a tramway or a conveyor belt system will be built to carry the refined product from the mill, located in a canyon, to railroad loading facilities 1,800 feet above the plant on the canyon rim.

Water and electrical arrangements for the new development already have been largely solved. Water rights to the Colorado River have been obtained for all necessary supplies, while Utah Power & Light Co. will furnish electrical power when needed.

Access roads present a particularly difficult problem in the Cane Creek area. However, an existing road already connects Moab with the potash properties by way of a river route. The road will require considerable improvement before it can handle vehicle travel deemed necessary to push development and commercial operations.

NPFI Voices Opposition To New Railroad Bill

WASHINGTON—That the passing of Senate bill 1313 and House bill 4353 would result in further increases in freight rates and thus put the fertilizer industry in a tighter business squeeze, was the point made by Paul T. Truitt, executive vice president of the National Plant Food Institute in his testimony before the Subcommittee of the Senate Labor Committee on Aug. 1. Mr. Truitt told the lawmakers that the Plant Food Institute opposes passage of the measure for this reason.

The bill, which would increase the cost of retirements and unemployment compensation to the railroads by \$175 million annually, would certainly reflect in higher freight rates, Mr. Truitt pointed out.

He reminded the committeemen that the fertilizer industry is a large shipper of a low cost product, "the use of which is essential to efficient

and profitable farming; hence to a prosperous agriculture. Approximately one-third of the value, on the average, of a bag or a ton of fertilizer is direct transportation cost," he added.

The NPFI executive declared that the industry has kept fertilizer prices at a minimum through various forms of technological progress. Fertilizer costs have not advanced as rapidly as many other prices farmers pay to make a crop, he declared, and added that "The increase in price as reflected in index numbers published by USDA shows an increase of 13.9% for the 10-year period 1947 to 1957. It is significant," Mr. Truitt added, "that the fertilizer price index, instead of advancing, has by now (1957) declined to the 1951 level."

On the other hand, he continued, USDA's prices paid index shows that railroad freight rates have soared 107.7% during the same 10-year period.

"In addition," Mr. Truitt said, "a

further increase in freight rates in Ex Parte 212 is now pending before the Interstate Commerce Commission. Hence, in round terms in a 10-year period, freight rate increases have been authorized about 10 times as fast as fertilizer prices have gone up."

GRAPE DAY

DAVIS, CAL. — For the second year in a row, a new plant growth regulator, gibberellic acid, is expected to be the feature attraction at the annual Grape Day held on the Davis Campus of the University of California. The day-long program, to be held in the university vineyards Aug. 21, will bring some expected 300 growers, shippers, and vintners right up to the minute on gibberellin experiments. Robert J. Weaver, viticulturist in the experiment station, says he will be gathering new information on the growth regulator right up to the day of the meeting.



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Allied Chemical

A Prominent State Control Official Shows How Distribution Patterns of Pesticides and Fertilizers Create . . .

The Changing Picture of Control

By Dr. E. W. Constable*

North Carolina State Control Official
President, Association of Southern Feed and Fertilizer Control Officials

THE pattern of control is ever subject to change, just as is true with the laws which authorize the control of commercial fertilizers, feeds and pesticides and the regulations, definitions and standards which implement them; and with agriculture and the industries which they serve. This has always been so, but in recent years, changes in materials, production, handling and selling, methods of application, and the development of new materials have been greatly accelerated, in some respects, unprecedented.

These changes bring about problems in control for which solutions have not been readily obtained. As a result, the application of control has not kept abreast in this accelerated pace.

Changes in methods of handling and sales, and the appearance of new products call for readjustment and extension of control. These are reviewed with the purpose of evaluating and seeking practical and uniform patterns of application and to maintain for the products involved those high levels of integrity and confidence which have been characteristic and which are indispensable in the best interests of both the industries which produce them and the consumers who use them.

Fertilizer

The earlier, dry-mix pattern of selling fertilizer in which labeled packages are temporarily stored, conveniently accessible for inspection and sampling, has been markedly diversified.

As examples, the mixes or materials, held in bulk on the seller's premises, may be transferred direct to the buyer, or sold to him delivered and spread on his fields by equipment owned by the seller. Materials, segregated in compartment trucks, may be delivered to the buyer's fields, being mixed as they are applied to the soil, and in ratios according to recommended grades, or as custom mixes.

Bulk deliveries may be made to buyers or to their fields direct from railroad sidings, either as materials or as mixes from railroad-siding mixers. The general pattern of these developments is to bypass conventional mixing plants, warehousing and other intermediate handling and storing.

The sale of nitrogen solutions and anhydrous ammonia, delivered on or in the soil has become a factor. Mixed liquid fertilizers have followed. The latter now are available either as approved grades or as custom mixes, delivered to buyer in bulk or delivered on his fields. Expanding interest in this method of selling is in evidence. It is not illogical to anticipate the compartment tanker and railroad-siding-to-soil delivery. Concern with official grade lists may diminish under these circumstances.

Composts and manipulated manures have come into more prominence. These have moved from the earlier low analyses, ranging around the 1-1-1 common to such products, into higher figures, 2-1-7, such as cattle manure from stables bedded with tobacco stems. There are mixtures of seed meals and hydrolyzed poultry feathers, tankage and similar materi-

als. These products are useful and have a growing market, but they also get into the range of low analysis fertilizers, a status ruled out on the basis of economics.

Other developments which still pose unsolved problems, particularly with respect to uniformity, are fertilizer-pesticide mixtures, the claiming and guaranteeing of trace elements, premium grades, claims for elements not known to be of significance in plant nutrition, and the labeling and handling of small-package goods which are distributed generally over large areas of the country.

Pesticides

The type of changes prominent in the handling of fertilizers applies only to a limited extent to pesticides. This probably is due both to the dangerous nature of these products and the fact that recent evolution has resulted in general revision of pesticide laws. Bulk selling is not legal. Custom mixes appear, but these are subject to all requirements that apply to stock products.

Aerial crop dusters may apply pesticides purchased and held by farmers, but apparently more often the crop duster buys from manufacturers or others and sells the farmer so many pounds of a given product per acre, applied to his fields. Some merchants supply dusting service and pesticides on the same basis. We know of no manufacturer who as yet offers an on-the-field service direct from the mixing plant, but this possibility logically cannot be dismissed. It also is to be expected that as factory-to-soil sales of fertilizer develop, fertilizer-pesticide mixtures also will follow this pattern.

In effort to evaluate and classify the changes herein indicated, it appears of value to consider briefly a subject which currently is much discussed and written about, namely, "integration." One writer defines the term as "A word which is used to identify almost any type of coordination or control of business units." Further breakdown in classification is "horizontal" and "vertical" integration.

Illustrations of the "horizontal" pattern are: the manufacturer who may acquire or control additional mills, the jobber or distributor who may acquire or control additional wholesale outlets, or the retailer who may control additional retail units, i.e.—chain stores. If, however, either the producer, manufacturer, jobber or retailer were to acquire or establish unified control over several parts of, or over the entire chain of operations from raw products to finished products put into the hands of consumers, the pattern of integration would be "vertical."

Integration may develop in both directions, of unlimited variations, and may have originated at any point in the chain. You will observe that the principle is not new, but appears now as more of a resurgence. Writers on the subject cite that it is born of economic factors, is here and is expanding. Cooperatives and contract broiler production are cited as examples in the agricultural field.

It is common to many fields and is the pattern into which fertilizer handling, and to some extent pesticides, are expanding. It very markedly af-

fects control and therefore must be taken into account in that respect.

New Products

The changing picture in control is further diversified by the appearance on the market of many new products which classify as agricultural chemicals. These appear as single-purpose and dual-purpose items and as combinations.

Fertilizer-pesticide mixtures are among the presently more common ones in this area. There are repeated requests for expansion of these.

Examples of dual-purpose products are the compounds of manganese and of copper which may serve either or both as pesticides and plant nutrients.

Examples of other items are those such as gibberellins for promoting plant growth—or maleic hydrazide for retarding growth; also those for extending or breaking dormancy, for promoting or delaying ripening, for promoting or reducing set of fruit according to load on trees, for promoting or thinning blossoming as circumstances may dictate, for promoting rooting of cuttings or for offsetting transplant shock, also defoliant both for leaves and other vegetative growth.

These changes, as is to be expected, impose a number of problems.

Fertilizers and pesticides, as marketed in bags or packages, are temporarily stored at various points and therefore are readily accessible for inspection and sampling under the usual routines. Bulk goods, however, involving fertilizers only, are fast-moving and usually are not stored at any point between sale and application to the soil, since an advantage of bulk selling is to eliminate intermediate storage. Inspection, sampling and weighing, if gotten in, must be fitted to this rapid pace. This means on-the-spot inspection when products are being loaded, in transit or on delivery. Obviously, the present patterns of inspection will require considerable adjustment to be suitably fitted to this new pattern.

Sampling prior to sale amounts to manufacturing control and is neither desirable nor covered by control laws. Sampling from farm storages would be questionable because of the possibility of mixing or exposure. Where bagged concentrates are sampled prior to bulk or custom mixing and selling, there is no guarantee against miscarriage before reaching consumers. Sampling from compartmented spreader trucks would qualify materials, but to sample the final mix would require collection from the truck discharge. Completeness of mixing here brings on other problems.

These considerations apply also to the sale of liquid mixed fertilizers. Concern with the product is as it is delivered to the farmer and not what is in the manufacturer's storage tanks. The custom application of nitrogen solutions and ammonia, particularly by intermediate custom applicators, poses similar questions as to analysis and weights.

Manipulated manures, particularly mixtures with other materials pose the problem of a drift back to low grade fertilizers. The tonnage at present may be minor, but precedents can be involved.

The claiming and guaranteeing of

trace elements bring on more problems—whether they should be guaranteed if claimed, and if guaranteed, whether quantities of agricultural significance should be required, what constitutes agriculturally significant quantities, and also if it should be permissible to guarantee elements which are not known to be of significance in plant nutrition.

Small package goods travel over much larger areas than other fertilizers. The lack of uniformity in various laws presents a problem in registering and labels. They often include special claims for special purposes such as hydroponics. Applying the usual fertilizer requirements to them is problematic.

The registration of dual-purpose items such as copper and manganese compounds, which may be both pesticides and plant nutrients and also of single purpose items such as screw worm remedies, which may fall under two laws, namely, pesticide and stock remedy, remain unsettled. Likewise unsettled is the classification and registration of many new products.

Advertising itself has become problematic. There is confusion regarding premium grades and the over-long ingredient list. Confusion exists regarding the need, presence, use and cost of trace elements. There are products not covered under some laws, i.e., soil conditioners and new items some of which cause trouble and take their toll.

Custom Mixes

Custom mixes are always with us, but the subject appears often to be approached with misgiving or as if it were something sinister which, if let alone, would go away. But it does not seem to go.

Since it remains as one of the more perplexing problems of the control official and is recognized as a phase of selling which is peculiarly subject to abuse under the presently expanding pattern of integration, it appears desirable that it be reviewed in consideration of control that will exclude its undesirable features.

Sound thinking would not propose denying a farmer his right to the legitimate purchase of custom mixes even though he might not follow the best practices. But, the problem does not end at that point, for too often the cry of "Farmer's rights" serves to confuse the issue. We well know that custom selling, uncontrolled, rapidly degenerates into prescription peddling, the components of the prescriptions being dictated by whims. We also know that the confusing of "farmers' mixes" and "prescription peddling" is not always without purpose. We are aware that this pattern of selling contributed to the erstwhile uneconomic lists of several hundred grades of fertilizer as compared to present official lists of some 30 or 40 grades.

Custom selling without adequate control is too readily appropriated as a cover for questionable practices from which both manufacturers and consumers suffer. Free of restraint, it tends to become a contagion and to entrap those who would prefer otherwise. Trustful consumers of limited information readily become the victims of glib salesmanship or of unscrupulous or fringe operators. Sound business is hurt by such competition. Transactions under the guise of custom selling can be shifty and secretive. Avoidance of inspection and its cost can be made attractive under certain conditions.

Many complaints arise from these sources. The injured farmer is quick to call for redress through the law, although his own activities may have skirted it. Recent cases serve as examples.

For instance checking and analysis of a sizable consignment of fertilizer from outside the state showed that it was custom made, at a very attractive price, for the farmer who brought it in for his own use. Analysis showed

*Address before Sixteenth annual convention of Association of Southern Feed and Fertilizer Control Officials, Atlanta, Ga., June 9-11, 1958.

that the deal was quite a gamble, both the farmer and sound business being the losers, and without redress, since the operation was outside of the law.

Doubtless such an example might be expanded to considerable length. However, with the foregoing facts, it serves amply to emphasize the need for dealing with the custom situation in a realistic way. Certainly, while avoiding the pitfall of allegedly usurping farmer's rights, a more clear-cut delineation and qualification of legitimate custom mixing will go a long way toward curbing questionable practices which masquerade under that name, and bring better protection to both farmers and the sound businesses which serve them.

Need of Control

The need and indispensability of our basic control system appear to be generally recognized and accepted. There seems to be little difference of opinion at this point. There is, however, a variation of opinions as to how far this control should be applied.

Examples of these are the opinions that control is not at present needed in such areas as certain bulk and custom feeds, or in dealing with trace elements where they are claimed in fertilizers, or in dealing with new products in the agricultural-chemical and soil-amendment fields.

A point of view advanced in support of this thinking is that bulk fertilizers must be good and must produce results or the consumer will soon discover the defect or failure to perform and therefore will shift to other sources of supply, to the loss of his former supplier, who, under such performance, could not long stay in business. The same point of view is carried into certain custom handling of fertilizers, for trace elements in fertilizers, and for new products.

There is little question of the sincerity on the part of sound producers who advance this reasoning, for they attribute their good intentions to all others and plan to stay in business themselves by supplying good products. But the area of exposure at this point and the open invitation to unscrupulous competition may be overlooked.

Experience repeatedly and consistently has shown that the trial-and-failure method—the loss of crops or loss in the production of livestock and poultry—employed as a means of determining the worth of feeds and fertilizers is prohibitive. This procedure of shifting from pillar to post in order to find reliable products is a happy-hunting-ground for the unscrupulous, for it offers him an opportunity to insert his chair into the circle of this game of "Changing chairs" and to exact his toll at the expense of consumers and sound producers until the game palls, then to move on to other endeavors. This procedure is none other than the old pattern of "Trial by ordeal," the prohibitive cost of which led to the present control laws.

The assumption that control is not needed in certain phases is to disregard questions and complaints that regularly come to control agencies. Farmers regularly send in samples of custom and other products for analysis in order to be assured of values as represented, or that extras which they have paid for are present. They wish to know what trace elements are present, in what quantities, whether or not these are of value, and other similar questions. When these items are not set up under the laws, the control agency is lacking in authority to deal with them. Penalties cannot be assessed for deficiencies. Farmers are left adrift and confidence is lost in the products, in the producer and in control.

To assume that control is not needed here is to ignore the lessons of history. The feed and fertilizer industries developed in response to need.

They thrive for a time and all benefited. But they fell on evil days. The game being without rules, naturally degenerated into a gamble of little principle and all suffered. These are indicative of the circumstances that brought about the present rules of the game—our present control laws. If now we exclude one, or ten, or any percent of these phases from control, then it appears that, with the shadows of liability which will be cast over the system as a whole, we will be reverting just that percent back into the old days.

For maintaining integrity and confidence in these products, time has proved the control laws to be the best rules of the game that we have yet devised. It appears sound and logical to stick with them and to apply them fully until we know that we have something better, for other courses can only mean the penalties of later reform.

Following review of the changing picture of control and its concurrent problems, the next logical question is—what to do about it? It would be gratifying indeed if the answers were as patent as the questions, but, as earlier stated, solutions are not so readily obtained.

All states, confronted with these problems in varying degree, likewise are working toward solutions. Exchanges between them are helpful to all. However, a more organized and concerted approach by states and industry would afford the advantages of unified effort and more ready development of uniformity. Thus initially we would avoid differences in requirements which would impose difficulty of administration, hardship on the trade, and later necessity for revision.

Among the more pressing problems are the inspection and sampling of bulk products, the general confusion of custom selling, and the claims, guarantees and registration of trace elements.

Inspection systems are largely of the pattern of "horizontal" integration. To control adequately the fast-moving products which are characteristic of the "vertical" pattern, requires extensive revision.

A clearer delineation of custom mixes is needed in order to eliminate confusion and undesirable practices in that quarter. Examples of suggestions to that end are to report by invoice, but on a 24-hour basis rather than 30 days, or full application of all requirements as for other goods.

There are differences of opinion as to handling claims for trace elements. Some manufacturers hold that there is no need at present for imposing control. Other manufacturers hold the opposite view. Consumers buy on the basis of claims and then call for analysis.

The control official, caught in the middle, harassed by demands and allegations, and at the same time trying to maintain consumer confidence, naturally turns his thoughts to one of these present-day gearless autos, without traffic control—just step on it, and then one grand "Swoosh" from standing start to police court or some other abode of more permanent tenure.

These differences must be brought to a fair and equitable level and in the best interests of consumers who pay the bills.

In dealing with the changes and problems of the day, we have before us a big job and a tough one, one of which even this lengthy review can attempt no more than analysis and evaluation. A much greater force is required and that means the cooperative effort of the association of control officials, the industry and the states—a conclusion that carries with it the assurance that the matter rests in fully competent hands.



COMPLETES 45 YEARS WITH IMC—Frank S. Walters, at left, receives a merit pin from Thomas M. Ware, president of International Minerals & Chemical Corp., Chicago, in observance of Mr. Walters' completion of 45 years of service with the firm. Mr. Walters has been a production supervisor in IMC's plant food division since 1949. In this position he was in charge of output at the company's eleven northern plants manufacturing fertilizers and other chemical products for farm use. He joined IMC as a clerk in East Point, Ga., in 1913. The 45-year award was made at a recent executive luncheon in the company's administrative center at Skokie, Ill.

Group Begins Study on Soil and Water Facilities

WASHINGTON, D.C.—The Department of Agriculture has announced the appointment of a working group to study facility needs for soil and water conservation research. The study is being made at the request of the Senate Committee on Agricultural Appropriations.

Members of the working group are: Dr. G. M. Browning of Iowa State College, representing the State agricultural experiment stations; Gerald E. Ryerson of the Soil Conservation Service; and Dr. Cecil H. Wadleigh and Dr. Darnell M. Whitt of the Agricultural Research Service.

Ezra Taft Benson, Secretary of Agriculture, directed the working group to focus its attention on problems of national and regional importance, leaving for the attention of the States problems having only State or local significance.

The working group will receive recommendations from Federal, State, and local organizations concerned with the conservation of soil and water resources. Interested parties are invited to present their evaluation of the kind and extent of soil and water problems needing research. A series of public hearings is planned.

Those interested in making presentations to the working group at these hearings should make their requests

in writing prior to Aug. 29 to the secretary of the group, Dr. Darnell M. Whitt, Plant Industry Station, Beltsville, Md. Scheduled dates and locations of the hearings will be announced later.

The Senate and House Committees on Agricultural Appropriations received a number of proposals for soil and water conservation research facilities during the hearings on appropriations for fiscal year 1959. The Committees stated that the recommendations received had merit, but that the total needs of the country for soil and water conservation research facilities should have careful study.

TO MARKETING POST

ST. LOUIS—William R. Haas has been appointed director of marketing for Monsanto Chemical Co.'s overseas division. He will replace S. C. Finnell, Jr., who resigned to accept a position with a Springfield, Mass., firm.

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AGRONOMISTS

(Continued from page 1)

John M. MacGregor, described nitrogen effect on corn and loss from the soil. They said that experimental plots, located on five soil types in southern Minnesota were used. Urea nitrogen, at the rate of 60 lb. an acre, was applied at three different times in the spring; to corn residues before plowing; at planting time; and as a late side-dressing. After a season of excessive rainfall, it was found that on coarse-textured and on the low-lying Webster soil, the late side-dressing was the most effective. Time of nitrogen application had no significant effect on the remaining three fields which had comparatively good drainage. Later tests showed that corn residues were effective in the retention of nitrogen in the soil.

The residual effects of fall and spring-applied nitrogen fertilizers were discussed in a presentation by Robert W. Pearson, C. E. Scarsbrook, H. V. Jordan and Orus L. Bennett, USDA Agricultural Research Service, and Alabama Polytechnic Institute. They reported that residual effects of both fall- and spring-applied nitrogen fertilizers were determined at five locations on soils having a wide range in texture. Rainfall, runoff, and evaporation were measured in an attempt to calculate percolation. A large part of the nitrogen that was not used by the crop to which it was applied was carried over for long enough periods to be of importance to succeeding crops.

There were wide variations in this residual effect with the season. This appeared to be related to both total rainfall and its distribution. As an average of 9-year location tests, nitrogen applied in the fall was about 60% as effective as nitrogen applied later at the conventional time in the spring for corn production. Recovery of 100-lb. spring applications of nitrogen by corn and several succeeding crops without additional nitrogen fertilization, amounted to 45%, compared to 37% recovery of the same rate of nitrogen applied the preceding fall.

A paper on the best economic levels of fertilization was presented by E.

H. Hartmans, University of Minnesota. He pointed out that since crop yields are influenced by a multitude of factors such as soil and moisture conditions, plant population, varieties, soil fertility, etc., measuring the effect of only one of these factors will lead to wrong conclusions.

"However," he said, "even assuming all soil physical and other factors influencing yields to be optimum, the most economic level of fertilization is strongly influenced by other factors in the farm business, the most important of which is capital availability. Only in the case of unlimited capital supply will a farmer aim at maximum net return per acre. With the present credit facilities and capital position of agriculture only a small percentage of farmers can be classified in this group.

"With extreme capital limitation, a farmer should aim at a yield level that will give maximum net return per dollar invested. Most farmers are partially limited in capital and should aim at a yield level where the last dollar invested in fertilizer will return as much as somewhere else in the farm business. Since this level is extremely difficult to determine at any given time, a safe general goal would be to fertilize to the point where the last dollar of fertilizer will give approximately \$1.50 in return.

"This goal, applied to the best southern Minnesota cropping area would dictate the use of 5 times as much fertilizer as is presently used and would mean an extra income potential of \$100 million in cash crops on approximately 8 million acres. Fertilizer properly used is one of the best investments a farmer can make today. Through its use he can (1) effectively lower the cost per unit of product and in that way combat the falling price level of farm crops, and (2) increase the size of his farm business for livestock through increased yields and an expanded feed supply.

"This is very important where acreage expansion of the present unit is limited. However, even if additional land is available the use of fertilizer to enlarge the business might often be more economical."

SURPLUS MARGIN NARROW

LAFAYETTE, IND.—That surplus agricultural commodities in the U.S. amount to only 3 or 4% more than our total agricultural domestic consumption and exports, was a point made by Dr. W. M. Myers, University of Minnesota agronomist and president of the American Society of Agronomy in his address at the ASA's annual convention at Purdue University here Aug. 6. He said that despite the apparent effect these surpluses have in depressing the market, the margin between too much and too little is actually a narrow one.

"The hazards, and consequent fluctuations in agricultural production prevent us from producing exactly the right amount each year," Dr. Myers declared. "Since we dare not produce too little, we must always, if we can, retain a small margin of productivity over needs."

The agronomist said that if present population forecasts are correct, "we will have 27% more people in 17 years than we have now." Yet, he pointed out, there will never be significantly more cropland than the number of acres now under the plow.

"Therefore, any increases in food production must come from higher per-acre yields," he said. "Viewed in this light, the 3 to 4% surplus productive capacity we have today looks small indeed. Should we have no increase in per-acre production for two years, this margin of safety would be erased by the 4% increase in population. To keep abreast of our food needs with present population increases, we need to increase per-acre production at about 2% yearly."

President Signs Pesticide Survey Bill for Finding Effect on Fish, Wildlife

WASHINGTON—The Congressional Bill, granting the Department of the Interior an annual sum of \$280,000 for studies on pesticide dangers to wildlife, was signed into law by President Eisenhower Aug. 1.

Purpose of the bill, introduced by Rep. Lee Metcalf (D., Mont.) and Sen. Warren G. Magnuson (D., Wash.) is to undertake comprehensive continuing studies on the effects of insecticides, herbicides, fungicides,

and other pesticides upon fish and wildlife. (CROPLIFE, Aug. 4, page 1.)

Although the bill authorized funds for use by the Department of the Interior, the U.S. Department of Agriculture will cooperate in gathering data.

MANAGER NAMED

COLUMBUS, OHIO—Appointment of Ellis S. Halley as manager of the Seed and Plant Food Division of the Farm Bureau cooperative Assn., Inc., Columbus, has been announced by Wayne H. Shidaker, vice president and director of divisional operations.



AT PACIFIC NORTHWEST CONFERENCE—Some of the attendants at the recent Pacific Northwest Plant Food Association's ninth regional fertilizer conference at Pocatello, Idaho, are seen here. Top row, left to right, Dr. B. R. Bertramson, head of the agronomy department, Washington State College and secretary of the soil improvement committee, and Del Rucker, National Plant Food Institute, Washington, D.C. At right is Rene Jones, manager of the fertilizer division of Anaconda Co., Anaconda, Mont. Bottom row: Norman Hibbert, also of Anaconda Co., Yakima, Wash., who was presented with certificate of appreciation at the convention. At right, below, are C. Orien Baker, head of the soils department, University of Idaho, and Grant Braun, American Potash Institute and chairman of the soil improvement committee of the PNWPFA.

ALABAMA

(Continued from page 1)

Plant Food Institute Achievement Award to James C. Britton, API junior in agronomy from Washington County, Ala., was a feature of the program. Bill Nichols, Sylacauga Fertilizer Co., made the presentation for the Institute.

"Super practices" for producing high forage yields were described by E. M. Evans, associate agronomist. He said that double cropping and using irrigation with high rates of nitrogen can result in enormous per acre yields of pasture, silage and hay. In Alabama experiments, Coastal Bermudagrass has produced more than 10 tons of hay per acre with high rates of nitrogen and adequate moisture, he reported. In addition, the high nitrogen rate increased protein content about 3%.

Double cropping of oats and Tracy sorghum for silage has been highly productive in other experiments, Mr. Evans pointed out. Yields were 7 tons of oat silage and 15 tons of sorghum. Nitrogen was applied at the rate of 80 lb. for the oats and 90 for the sorghum. Irrigation was the key to success in this operation, explained Mr. Evans, since drought prevented establishing a crop following the oats with available soil moisture.

Mr. Evans said the "super practices" are not meant to replace minimum fertility requirements recommended. Rather, they are designed for farmers who want to produce large yields on small acreages, or for those who want to improve forage quality.

The fertilizer story is an old one, but there is still a need for emphasizing it, declared L. A. Smith, Black Belt Substation superintendent.

With the change to livestock farming, the need for fertilizing pastures must be sold to farmers. Mr. Smith cited experimental results to show how fertilizer can increase beef production on pasture. Unfertilized pas-

ture on Sumter soil averaged producing only 48 lb. of beef per acre, he said. During the same 5-year period, adjoining pastures that received 400 lb. of superphosphate and 77 lb. muriate of potash produced 323 lb. of beef per acre. This 275-lb. increase made fertilization highly profitable, he pointed out.

Alfalfa was described by Mr. Smith as a top quality forage that should be grown by Alabama farmers. He explained that there are 10-year-old alfalfa stands on the substation that have produced an average of 4½ tons of hay per acre per year. Correct fertilization is essential for alfalfa, he said, and it should be done according to soil test recommendations. Generally it requires about 1,000 lb. of 0-10-20 and 15 lb. of borax per year, he stated.

Fertilizer dealers were advised to sell a weed control program as they sell fertilizer. V. S. Searcy, assistant agronomist, said controlling weeds is necessary to get full value from fertilizer applied to crops, since weeds frequently take up more fertilizer than do crops. Chemicals can be used to control most troublesome weeds, he pointed out, but this does not mean that other methods should be discarded. A combination of control methods frequently will give best results, he said.

The widely publicized imported fire ant came in for a share of attention, with Dr. Kirby Hays, assistant entomologist, reporting on control research. He said the experiment station is recommending treating small areas of open land and pasture to control the pest. Treating woodland and large areas is not being suggested until more is learned about effects on wildlife, he said.

In experiments at the Black Belt Substation, Dr. Hays reported, single broadcast treatments with heptachlor, dieldrin or chlordane have controlled fire ants for as much as 5 years in some tests and 3 years or more in all others. Rate of treatment was 2 lb. per acre for hepta-

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Soil test recommendations must be based on field research to be useful, declared Dr. R. D. Rouse, soil chemist, in a discussion of reliability of soil tests. This is the basis of all recommendations made for samples tested by the experiment station, he said, and accuracy is of greatest concern in the laboratory. Since recommendations are based on results of continuing field experiments, soil tests are reliable guides for farmers to follow and should be used in crop production on every farm, he stressed.

High forage yields remove large quantities of fertilizer elements from the soil, making it necessary to fertilize adequately, Dr. L. E. Ensminger, soil chemist, said. He cited results of chemical analysis of Coastal Bermudagrass hay to show the extent of removal. Most of applied nitrogen was removed in the hay, he said. When 7½ tons of hay were harvested, about 300 lb. of potassium and the amount of phosphorus in 400 lb. of superphosphate were removed. Calcium and magnesium are removed in proportion to hay yield, he said, but amounts are small.

A method of renovating pastures overrun with carpetgrass was described by R. M. Patterson, associate agronomist. He said Dowpon can be used to kill carpetgrass and clovergrass mixtures can be seeded without any land preparation. In several Alabama tests, Dowpon was applied in late July and early August and white clover was seeded in mid-September with either Dallisgrass or Bahiagrass. Good results were obtained with this method when Dallisgrass was used with white clover. Since Dowpon does not kill Dallisgrass, the treatment will not destroy any Dallisgrass already present, Mr. Patterson said.

A report of new forage crop varieties was presented by Dr. Robert Langford, associate agronomist. There has been much interest in a new variety of Bermudagrass, called MK-37, that can be established from seed, he said. In preliminary tests last year, this erect-growing Bermuda was highly productive, he pointed out, but when mowed frequently it produced no rhizomes and only a few plants survived. It was also severely infected by Helminthosporium, which causes brown spot on common Bermuda.

The fertilizer dealers toured the two experiment station system units for a look at field research. In charge at the Black Belt Substation was Mr. Smith, superintendent, and Harold Grimes, assistant superintendent. F. E. Bertram, superintendent, and Dr. J. T. Cope, Jr., associate agronomist, conducted the tour at the Prattville Experiment Field.

Dr. Howard T. Rogers, agronomy and soils department head, and Hoyt Warren, extension service district agent, presided at the conference.

Food & Drug Names Detroit District Chief

WASHINGTON—George T. Daughters, who has directed the Chicago district of the Food & Drug Administration for the past three and a half years, has been appointed chief of the new Detroit district of FDA.

George P. Larrick, commissioner of food and drug, also named Howard M. Bollinger chief chemist for the district.

The Detroit district is the FDA's 17th field headquarters operation and the first new district added in 24 years. The new district includes the state of Michigan and the northern parts of Indiana and Ohio. The area has been served by the Chicago and Cincinnati districts.

Mr. Daughters has been with FDA 30 years and has served as chief of the Baltimore office as well as the Chicago district. Mr. Bollinger has been chief chemist for the Los Angeles district since 1951.

Cotton Pressure To Insure Passage Of New Farm Law

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON—Despite the fact that farm legislative machinery is stalled on dead center, every available bit of information indicates that Congress will pass a farm bill very close to the provisions of the bill already approved by the Senate.

Unofficial and preliminary data made available last week to Croplife discloses that the August cotton crop report will show the necessity of cutting back cotton acreage allotments for the 1959 crop to the bone.

This preliminary data indicates that no matter what the level of the August cotton crop estimate may be, total disappearance of cotton—domestic and export—for the next year

will be so substantially reduced that it will be necessary for the U.S. Department of Agriculture to bring cotton acreage allotments down to a point which would restrict total cotton production for the 1959 crop to not more than 10 million bales.

Observers here say that the cotton area legislators cannot live with such a condition. Once these conditions are known, it is confidently expected in official circles that Congress will take another and more favorable view of the Senate-passed farm bill and will promptly enact it. This will create for 1959 and 1960 cotton crops a basic minimum acreage of 16 million plus.

Ragweed Poses Big Problem in Oregon

SALEM, ORE.—A ragweed infestation is a real agricultural problem in Oregon for the first time, the state department of agriculture reports. Previously, ragweed was considered

CROPLIFE, Aug. 11, 1958—21

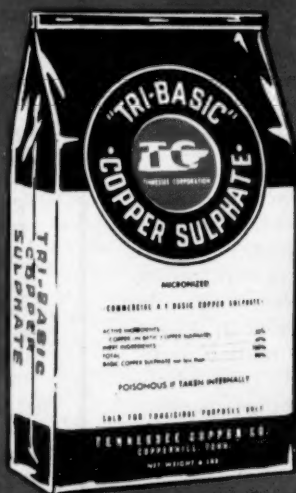
just a health problem as it causes hay fever, asthma and dermatitis.

The basis for the above statement happened in Southern Oregon where the standing crop in a 7-acre oat field was sold as ensilage for \$50, because it contained so much ragweed it could not be combined.

George Moose, state ragweed control program supervisor, said the plants not only outnumbered oats 10 to one, but they stood about three inches higher than the oat crop. If the department had been notified when the ragweed was first noticed, he said, the crop could have been saved through spraying.

The owner of the infested land said no ragweed was in evidence on the field last year. He said he sowed oats at the rate of 100 lb. an acre and got good germination. Last year the land was planted to corn with no ragweed.

Mr. Moose reports the department has discovered a new infestation southwest of Grants Pass in the Jerome Prairie area.



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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

Will New Market Areas Develop in Alaska?

WITH the granting of Statehood to Alaska, citizens in all of the other 48 states are curious for further information about this new addition to the map of the U.S. It is appropriate for the fertilizer and pesticide trades to take a second look in that direction to learn more about the agricultural pursuits of the area and whether much of a market is there.

Actually, it is surprising to find how many favorable factors do exist in connection with Alaskan agriculture. Dr. Allan H. Mick, director of the Alaska Agricultural Experiment Station, University of Alaska, Palmer, has pointed out a considerable number of facts in this direction. In the first place, he says, northern climates favor forage, and thus dairying is a large agricultural industry, with butter and cheese having been exported from subarctic regions. Cool-season vegetables and potatoes grow well in Alaska, Dr. Mick says.

One of the factors of crop-raising in this northern climate, according to Dr. Mick, is the unusual length of daylight hours during the summer months. Regions of high latitude possess peculiarities of this sort, but in the case of Alaska, this environmental feature has a considerable bearing on crop production. The long days, averaging some 18 hours in Anchorage during July, plus six hours of twilight; and almost continuous daylight during June and July in the Tanana Valley, lying between 64 and 65°, are examples.

How this unusual situation affects the growing plants is described by Dr. Mick who reminds that although the growing season is short in terms of days, it is extremely long in terms of light hours.

At latitude 64°, he says, nearly 1,220 hours of daylight are available for photosynthesis during the 61 days of June and July. An additional 244 hours of twilight may be utilized by some plants for photosynthetic processes. "Contrasting equatorial regions, where daylight and dark hours are nearly evenly divided, require 102 days to receive this amount of light," he says.

Dr. Mick continues: "When the entire growing season—that portion of the year when factors other than light do not limit plant growth—of these extremes in latitude is compared, it is revealed that the light hour equivalent at 64° from May through September approaches 2,900. This equals nearly 8 months of equatorial calendar time.

"Insolation explains the phenomenal growth of adapted crops in the subarctic. Compare, for example, a cabbage growing in the truck areas of California with its counterpart in a Fairbanks garden. During its peak growing season in California, the cabbage is synthesizing for perhaps 13 hours a day. At night it respire at maximum rates for nearly 9 hours. In Fairbanks the cabbage synthesizes for 20 to 22 hours a day and at night respire at a minimum rate for only 1 or 2 hours.

"Net daily weight gains in synthesized products are therefore much greater at Fairbanks than in California. Marketable heads form rapidly and tissues are not physiologically aged as in southern climates by the time the product is consumed. Sugar levels are high in 'youthful' salad crops. The total effect of the subarctic environment is rapid growth of highly palatable plant tissues.

"In the more complex food chain represented by milk and meat production, subarctic environments again demonstrate how abundant light can be exploited. Studies of forage response show that an acre of land in the Matanuska Valley can produce as much or more protein as will an acre of land in Georgia or Nebraska.

"In considering quantitative and qualitative light characteristics, mention should be made of cloudless skies and brilliant sunshine which mark

subarctic agricultural lands removed from the sea to windward. Even though summer insolation is greater in these areas than in low latitudes, much energy is expended in melting snow and ice and in warming great expanses of wet land. Air temperatures therefore remain relatively low. Low temperatures mean little evaporation and little moisture in the air.

"Relative humidity varies from extremely low to high, particularly on windward coasts. Precipitation is generally light, averaging less than 15 inches a year except along windward coasts. During the early growing season, lack of soil moisture rather than lack of light generally limits plant growth. As the season progresses, cloudiness becomes more prevalent. Harvest season rains reduce soil temperatures and cold weather may limit the activity of photosynthetic processes."

Land areas of Alaska are considerable, of course, but estimates of arable acreages vary widely. Many figures have been based on assumptions that all potential areas are equally accessible and that marketing opportunities are similar, Dr. Mick comments. He calculates, however, that the total area of potentially good cropland in Alaska probably amounts to more than a million acres, full utilization of which will supply part of the food requirements of perhaps 2½ million persons. To accomplish this may require from 5,000 to 6,000 farm units.

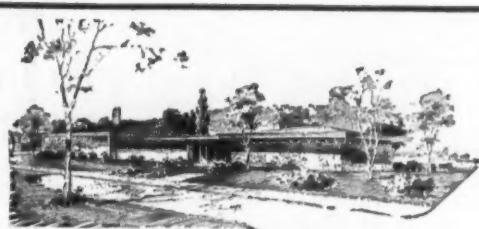
"There are also an estimated 4 to 6 million acres of extensive summer grazing land in the new state. Some coastal areas are already under lease. Other areas, notably in the interior where winters are severe, may never be used because winter feeding and shelter require excessive capital outlays under foreseeable conditions. A few small areas are currently grazed. For example, a small valley in the Talkeetna Mountains, which bound the Matanuska Valley on the north, has been successfully grazed by dairy, beef, and dry stock for several summers.

"Several million acres of grassland also exist on Kodiak and other islands to the westward. Experience there proves cattle and sheep can live and flourish on a year-round basis. Transportation, marketing, and other problems, have been limiting factors, however."

That good fertilization is a must, was voiced by the Alaskan agricultural experiment station director. "Farm management practices must include sound conservation principles to preserve relatively thin surface mantles and low organic supplies, and to maintain adequate amounts of moisture," he says. "Most soils require generous applications of commercial fertilizers, especially nitrogen and phosphates, even from the very beginning—a fact that sometimes discourages the homesteader. Cultivation stimulates oxidation of soil organic matter and this process competes with crop plants for the little nitrogen inherently available. Nitrogen deficits can be made up only by generous applications of nitrogen fertilizers.

"All fertilizers must be imported and their cost is high. Ammonium nitrate imports are complicated by the chemical's hazardous nature which must be taken into account in shipping and storing. But it is still the cheapest and most efficient source of nitrogen available to Alaska farmers."

This is but a mere glimpse at the Alaskan agricultural picture. It is a land of true pioneering, populated by people who are willing to try new things and who realize that life in the far north is a rigorous experience. Regardless of how much of a market these 5-6,000 farms might turn out to be so far as fertilizers and pesticides are concerned, it is interesting to contemplate the agricultural aspects of our newest state.



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